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PRACTICAL MANUAL
OF
DISEASES OF WOMEN
AND
UTERINE THERAPEUTICS.

For Students and Practitioners.

BY

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FORMERLY

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FOURTH EDITION.



LONDON :

BAILLIÈRE, TINDALL, AND COX,
KING WILLIAM STREET, STRAND.

1890.

DAVIDAR J. J. J. J. J.

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To
THE MEDICAL GRADUATES

OF THAT UNIVERSITY WITH WHICH HE WAS,
FOR A PERIOD OF TWENTY-TWO YEARS, CONNECTED, EITHER AS
STUDENT OR TEACHER,

THIS BOOK IS INSCRIBED
IN RECOLLECTION OF THE HAPPIEST PERIOD OF HIS LIFE

BY
THE AUTHOR.

PREFACE TO THE FOURTH EDITION.

THE many advances made in gynecology during the past few years have necessitated a complete recasting of the fourth edition of this work. I have endeavoured to add all that is of practical importance to the student or practitioner in the recent literature of the subject. Though the text has thus had to be very considerably increased, I have striven to keep the volume of that handy size so desirable in a student's manual. New chapters on Gynecological Electro-Therapeutics, certain Renal and Vesical Affections, and Massage, have been added, and over a hundred new illustrations. I am indebted to Sir Spencer Wells for his suggestions in rewriting the chapters on Ovarian Tumours and Ovariectomy; to Mr. Bland-Sutton for his contribution on the Pathology of Ovarian Cystoma, and to Mr. Malcolm Morris for his revision of the chapter on Cutaneous Affections of the Vulva. I have to acknowledge my obligations for many important facts culled from contemporaneous medical literature, to the distinguished American editors* of the sections on gynecological subjects in the 'Annual of Universal Medical Sciences,' the most valuable compendium I am acquainted with of contemporary medical and surgical science. I have specially to thank Dr. J. J. Redfern (now of Croydon) for reading

* Drs. Paul Mundé and Brooks Wells, New York; Drs. William Goodell, W. C. Goodell and Parish, Philadelphia.

the proof-sheets, and for the preparation of the complete index and list of authorities quoted in the work. The reception given to the last edition of this manual is best shown by its rapid sale; but I may be pardoned for referring to many voluntary expressions of warm approval of it as a text-book which I received from several distinguished teachers in the schools of the United Kingdom and America, while I am aware that it has been largely used in India.

H. MACNAUGHTON JONES.

141, HARLEY STREET, W.

May, 1890.

PREFACE TO THE THIRD EDITION.



OWING to the advances made in gynecological science during the last two years, I have found it necessary to make many changes in this manual. It has therefore been carefully revised, a different arrangement in various portions has been adopted, and several important additions have been made. While it has been thus considerably enlarged, the original object has been kept in view, of giving to the student and practitioner a handy volume containing, in a condensed yet readable form, all the information required of the latter in his every-day practice, and of the former in his clinical studies at the bedside. More especially have the chapters on Disorders of Menstruation, Dysmenorrhœa, Prolapsus, Fibroid Tumours, Cancer of the Uterus, Affections of the Fallopian Tubes, Diseases of the Vulva, Affections of the Urethra, Sterility, Affections of the Rectum, been materially revised or enlarged. Chapters on Ovariectomy, Cystitis, Stone in the Bladder, and Massage, have been added. To Mr. Lawson Tait I am indebted for a description of his operation for restoration of the perinæum; to Mr. Reeves, of the London Hospital, for some suggestions in the remarks on the various operations of hysterectomy; and to Mr. Malcolm Morris, the distinguished dermatologist, for some practical hints in rewriting the

chapter on Affections of the Vulva. I would wish to say in reply to some criticisms, to the effect that the observations I have made on the use of pessaries are hardly in keeping with the figuring and description of several varieties of these, that this manual being intended to aid the student as a text-book for his examinations, I deemed it necessary to introduce such descriptions; but I have been careful to expressly state the conditions under which I advise supports, and the precautions to be taken in using those which I specially recommend.

I have to express my obligations to Messrs. Arnold and Sons for special blocks of instruments prepared for me for the chapters on Ovariectomy and Operations on Urinary Fistulæ; to Messrs. Mayer and Meltzer for several special engravings executed for this edition. I have already acknowledged my indebtedness to Messrs. Maw, Son, and Thompson, and Messrs. Krohne and Seseman for a like courtesy.

In conclusion, I may be permitted to express the gratification which the reception of the previous editions of this work has afforded me, and trust that the passage through the press of three large editions in as many years has proved that the book has been found 'useful as a safe guide in practice by the practitioner, and an assistance in the study of this branch of the profession by the student.'

141, HARLEY STREET, W.

October, 1887.

PREFACE TO THE SECOND EDITION.

THAT a large edition of this work should have been exhausted within five months from its publication, is in itself the most gratifying proof of the manner in which it has been received by the profession. The author cannot but feel grateful for the impartial spirit in which, with one striking exception, the book has been referred to by the medical journals. The object of the work, and the reasons for its design, are sufficiently set forth in the preface to the first edition. In its present form it has been carefully revised, yet, in the main, little altered. A chapter on affections of the rectum, more especially appertaining to those diseases which are commonly met with in women, and which are influenced by uterine conditions, has been added. Also the author has thought well to include two chapters on the diagnosis and treatment of some affections of the mammary gland. The appendix on health resorts has been amended and enlarged. Some remarks on the ætiology of spasmodic dysmenorrhœa, and a description of Dr. Alexander's operation on the round ligaments, concludes the Manual. Finally, the writer has felt that he was in some degree justified in undertaking the 'exceptionally difficult' task which he accepted by the several letters of approbation of the work received from many distinguished physicians and gynecologists, while he has been still more pleased to receive the congratu-

lations of a number of those in busy general practice, for whom the information it contains was intended, and who have not time to wade through too ponderous, nor the inclination to master too technical, a treatise. Nor can he refrain from expressing a hope that the flattering compliment paid him by the distinguished Gulstonian lecturer of 1884* may, in some degree, come practically true, when he says that the preface (of the first edition of the Manual) "must prove a pillar of support to those who hold like opinions on the mischief of modern specialism."

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CAVENDISH SQUARE.

* 'Visceral Neuroses,' by T. Clifford Allbutt, M.D., etc., Gulstonian Lecturer, 1884. J. and A. Churchill : London.

PREFACE TO THE FIRST EDITION.*

WHEN, some months since, the publishers of this work invited me to write a Manual on Diseases of Women, for the use of students and practitioners, I accepted the task with grave misgivings of the possibility of writing any comparatively small book which would do justice to this important subject. Yet many years of experience, both as a clinical teacher and lecturer on obstetrics, had taught me that students rarely mastered the more comprehensive gynecological treatises, which I was myself in the habit of recommending to my class: such, for instance, as those of Dr. Gaillard Thomas, Dr. Robert Barnes, Dr. Emmet, Dr. Karl Schroeder, etc. The course of obstetrics and gynecology, embracing both practical midwifery and the study of the diseases of women, is a most extensive one. How inadequate is the time at the disposal of a lecturer to complete a satisfactory course of obstetrics in one winter session, is known only to those teachers who have had experience of the effort to do so. The obstetric course is not generally attended until the third or fourth winter session. The student of that year is endeavouring to attend his hospitals, to complete his anatomical and physiological knowledge, and is engaged in

* Necessarily the observations made in the preface to the first edition bearing on the scope and character of the manual are not equally applicable to the subsequent and enlarged editions.

learning the elements of pathology and the theory and practice of medicine and surgery. Naturally the ordinary student complains that he cannot read the larger standard works on 'Diseases of Women.'

There is another difficulty in the way of the student and his acquisition of gynecological knowledge. In any large Metropolitan hospital, and school connected with it, this may not so much be felt, but it certainly is in those schools with which there is not associated a large extern department for the treatment of women's affections. It is hard for a student to take a mental grasp of that which he has not been shown practically either in the ward or theatre. The study of gynecology in this respect differs from either that of the practice of medicine or surgery, with which branches of his art, even with ordinary observation and attention, he becomes fairly familiar as he attends his hospital ward and dispensary from day to day. This facility is not, as a rule, afforded him in the examination of uterine cases. He takes up the larger work on 'Diseases of Women,' weighted with the feeling that he has to wade through pages of pathology and symptomatology, which he has never seen practically explained either at the bedside or at an autopsy.

Unfortunately, many students look on the treatment of women's affections as a 'specialty.' This is but one of the many disastrous consequences which have followed that modern parcelling out of the body into segments, and the handing over of a small piece of it to this or that specialist to exercise his speculative ingenuity in the discovery of

some diseased condition beyond the ken of the ordinary physician. A mushroom-like brood of specialists and specialties appear daily to be sprouting into existence. With some experience of 'special' work, I have come to the conclusion that, with the exception of ophthalmology and otology, there is, or rather ought to be, in the hands of most well-trained and well-educated physicians and surgeons, no necessity for that abandonment of the rightful responsibility which as physicians or surgeons they should assume to their patients. To share such responsibility with another in consultation must frequently be alike their duty and privilege. And the discharge of such duty brings at all times a pleasurable feeling to the practitioner, when he can call to his assistance a ripe and cultured experience, especially if that experience be founded on a wide and general knowledge of disease, and one which is unbiassed by the narrower views that grow out of a limited field of observation.

It is a lawful ambition of the physician or surgeon to acquire a reputation for special work in any department or departments of medicine or surgery. But he can best apply this particular knowledge, who cultivates it without neglecting to improve his acquaintance with the diagnosis and treatment of disease in other organs.

In speaking thus, I do not necessarily allude to exceptional and serious operative measures, where experience in the details of an operation or in surgical manipulation alone justifies a man in undertaking such. But these are the exceptional cases in daily practice. And it is of the every-

day duty of the physician or surgeon to his patients I am speaking.

In my view disastrous consequences have followed the public craze for specialists, into which latter-day fashion society has been led by the profession itself. It has encouraged a feeling that accurate knowledge is only to be attained by the few, thereby tending to develop a widespread empiricism; it has, I believe, injured the professional standing of the general physician or surgeon by diffusing a belief in the public mind that his knowledge is of a less exact, and therefore inferior kind, and that it does not qualify him to grapple with any grave or unusual difficulty. It has tended to throw doubt on his technical skill and manipulative power.

I have instanced the sciences of ophthalmology and otology as exceptions. I do so, inasmuch as I believe that peculiarly technical and manipulative knowledge, and very *special* experience, are required for the successful treatment of a considerable proportion of ophthalmic and aural affections. Not that I think any educated physician should be deficient in a knowledge of the use of the ophthalmoscope. This I have exemplified in the present work.

I am aware that in writing thus, I am giving expression to views that many will regard as most unorthodox. Still, in stating them openly, I shall at least have the satisfaction of knowing that I have given honest expression to my convictions.

This volume, which I venture to place in the hand of

both student and practitioner, is not meant to take the place of such treatises as those of Barnes, Gaillard Thomas, Emmet, or the most admirable work of Hart and Barbour, which, as a technical work, is one of the most valuable of its size for a student that I know of in the English language. Nor do I recommend any practitioner interested in this subject to miss the pleasure of reading the enjoyable 'Lessons' of Goodell, the graphic work on 'Ovarian Tumours' by Sir Spencer Wells, the admirable treatise of Lawson Tait, or the practical lectures on 'Diseases of Women' by Matthews Duncan. These, and many other works by eminent Continental, American, and British authors, may be perused with interest and profit. I do not attempt in this book to introduce lengthy descriptions of several serious gynecological operations, such as those of Porro, Freund, and some of the more complicated vaginal operations. The steps of operations in the various forms of fistulæ I do not minutely enter into. All these operative procedures will be found fully described in larger obstetrical works, and in treatises on general surgery.

This book, then, is simply intended as a practitioner's and student's manual. I have endeavoured to make it as practical in its teaching as possible.

I have to express my obligation to several leading London instrument-makers for their courtesy in giving me blocks of nearly all the appliances represented, especially Messrs. Arnold, Krohne and Seseman, Maw and Son, Mayer and Meltzer, and Messrs. Matthews.

I have to thank my friend Dr. J. Hill Gibson for his kindness in reading and assisting in the correction of the proof-sheets.

• If the book is found useful as a safe guide in practice by the practitioner, and an assistance in the study of this branch of his profession by the student, it will have fulfilled its mission and the object of the author.

141, HARLEY STREET, W.

May, 1884.

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DISEASES OF WOMEN.

CHAPTER I.

ANATOMICAL AND CLINICAL.

INTRODUCTORY.—ANATOMICAL FACTS BEARING ON GYNECOLOGICAL PRACTICE.

It is outside the scope of this work to enter into a detailed description of the female pelvic organs and their relations. But a few practical anatomical lessons have to be remembered by every student and practitioner when examining or conducting a gynecological case. It is necessary in the first place very briefly to allude to these.

VULVA (Fig. 1).—The vulvar orifice is elliptical in shape and comprises the mons veneris, labia majora, labia minora, clitoris, meatus urinarius, vestibule, fossa navicularis, fourchette and hymen. It varies in size in different individuals. In some women the vulvar opening is contracted. Both its size and elliptical shape influence us in the choice and method of introduction of a speculum, in the virgin, and in sensitive women. The best specula are those of a tapering form, or such as expand with two or three blades, on the principle of Cusco. Occasionally there is complete atresia of the vaginal orifice. Here it will be necessary to interfere surgically. The sebaceous follicles on the inner surfaces of the labia, with the adjacent mucous membrane, offer to all contagious secretions a large surface for the retention of fluids, septic

particles, or any specific virus. On the vulva or vulvar orifice we find, occasionally, in unhealthy states of the system, aphthous or gangrenous sores, specific ulcers, purulent discharges; in children, noma vulvæ. Its exposed

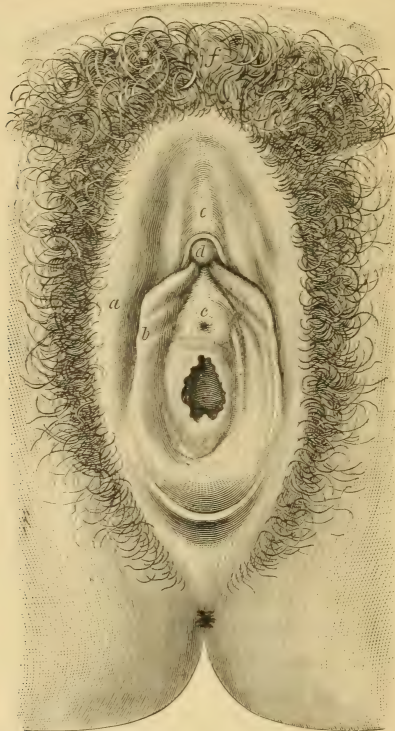


FIG. 1.—The Vulva. *a*, Labia; *b*, Labia minora; *c*, Meatus urinaris; *d*, Glans clitoridis; *e*, Clitoris; *f*, Mons veneris.

position renders it specially liable to injury, either from accident or violent intercourse. The apposition of its mucous surfaces, and the consequent irritation produced by friction during exercise, or in inflammatory states of the vagina, where we have unhealthy discharges, causes a sense

of heat in the vulva, and the other symptoms of vulvitis. During the exanthemata, in puerperal and other fevers, smallpox, measles, scarlatina, these parts are occasionally inflamed. From what I have just said of the predisposition of the follicles and mucous membrane to inflammation, their occasional exposure to irritating secretions, and the effects of uncleanness and injuries, we have, in the abundance of cellular tissue found under the mucous membrane, a ready explanation of the frequency with which phlegmonous inflammation attacks the vulva. Beneath the labia is the vascular bulbous hirudiniform body, the bulb of Kobelt, which is composed of a large plexus of veins. In this anatomical arrangement we have an explanation of pudendal hæmorrhage and thrombus. I have seen fatal hæmorrhage follow from malignant ulceration of one labium, notwithstanding that every means of treatment was used, including perchloride and persulphate of iron, various astringents, actual (Paquequin's) cautery, combined with plugging of the vaginal canal, an external compress, and a firm T-bandage. The large vascular supply of the vulva accounts, also, for the occurrence of septic poisoning and septicæmia, which at times follow injuries and abscess of the vulva, from the breaking down of thrombus and the exposure of coagula. From these remarks it is evident that cleanliness is the first essential of treatment in any case of vulvar inflammation, and that neglect of cleanliness leads to many of the affections we find attacking this part. The vulvo-vaginal gland occasionally has its duct occluded, and here, as elsewhere, when this occurs, over-distension of the duct may follow, with arrest of secretion and inflammation of the lining membrane spreading to the gland, and abscess in the gland; or hyper-distension of the gland and the formation of a cyst. The presence of a defined tumour at either side of the vulva, varying in size from a large nut to a pigeon's egg, painful and fluctuating, is pretty characteristic. The

free use of disinfecting solutions, as carbolic solution ($\frac{1}{40}$) or Condyl's fluid, or bichloride of mercury (1 in 5000), is indicated, when any incisions are made for the relief of pus in vulvitis. The analogy of the labia to the male scrotum is obvious. As the loop of intestine descends with the spermatic cord in the male to the scrotum, so it passes with the round ligament to the labium in the female. Care must be taken not to mistake a painful hernia of the labium for an abscess. Unless there be strangulation, the hernia returns with the horizontal posture and pressure, and a truss with a perinæal strap may be worn to retain it. The obliteration of the canal of Nuck explains the comparative rarity of inguinal hernia in the female. Yet a hydrocele of the round ligament may occur. It is necessary to bear this contingency in mind. Such a case I saw recently—the lady came for 'removal of the tumour.'

THE CLITORIS.—This may be hypertrophied and abnormal in size. We should remember its position at the commencement of the vestibule half an inch behind the anterior angle formed by the labia. It must be avoided in digital examinations, by keeping to the rectal wall of the vagina, and when passing the catheter, by arriving at the meatus through the guide afforded in the cord-like feel of the urethra. If beginners have a difficulty in hitting off the orifice of the urethra, or there be any delay in finding it, it is far less distressing to the patient, and saves useless bungling, to separate the thighs and gently drawing the labia apart to find the urethral opening. The operation of clitoridectomy for various disorders of the nervous system, more especially epilepsy and hystero-epilepsy, brought on by masturbation, is not an accepted operation in this country. Yet masturbation leads to every form of nervous mischief in women. Rather must we combat it by judicious moral means, healthier mental and physical occupations and enjoyments. Even if we do not lead the patient to believe that we sus-

pect the habit, we must by the directions we give in her hearing, or to her, let her feel that such a practice, or any that leads to undue excitement, is bad for her. Next to masturbation, too frequent medical examinations—as often demanded by the woman as they are unnecessary for any therapeutical or diagnostic purpose on the physician's part—are to be condemned. The obstetric art is made the opprobrium of scientific medicine if uncalled-for examinations are made.

THE URETHRA.—The shortness of the female urethra saves the woman the penalty paid for every additional inch in length of the male canal. Its dilatability admits of digital exploration of the bladder, after dilatation with an ordinary urethral dilator, a small glove-stretcher, or any uterine dilator.* It is unnecessary to put a patient to the slow torture of sea-tangle or tupelo dilatation. Its distensibility renders litholapaxy (Bigelow's operation) or lithotritry, comparatively, an easy operation in the woman. We never can experience any difficulty in relieving the female bladder. The stem of an ordinary pipe, a straw, a goose-quill, any short tube over three inches long, will successfully accomplish this necessary operation, if we do happen to forget our catheter. Any little warty growth about the nymphæ or urethra should demand our attention; so also any discharge pouring from its orifice. In ordinary vaginitis the urethra has not generally an inflamed, pouting appearance. It frequently has in gonorrhœal inflammation. (I shall refer to caruncle of the urethra further on.) Warty conditions and hypertrophied states of the nymphæ occasionally occlude the orifice of the urethra.

THE VAGINA.—This canal, about the length of the fore-finger, is narrow below, and very distensible in women who

* The author's uterine dilators, or Hegar's, answer this purpose admirably. See Chapter on Vesical Affections for electric illumination of the bladder.

have borne children, widening at its uterine extremity. This dilatability explains, especially in atonic states of the vagina, the large accumulations of gas or fluid that collect in the canal.* The muscularity and elasticity

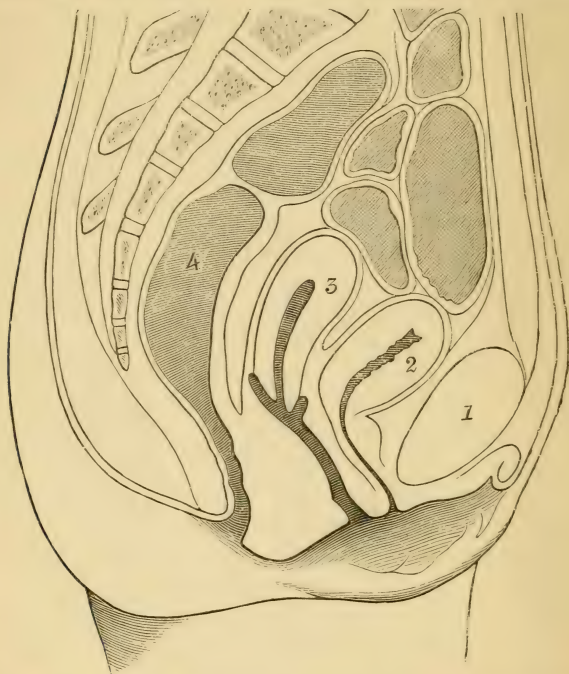


FIG. 2.—Section of the body of a woman, aged twenty-five, showing the Pelvic Viscera and Perinaeum. (Adapted from 'Atlas of Descriptive Anatomy.') (After Heitzman.)

of its walls are shown by the inherent power that the vagina possesses of expelling its contents; as for example expulsion of the after-birth, the speculum or physometrous

* The forcible and audible expulsion of air which occurs occasionally after a woman has been in the genu-pectoral position affords an illustration of these facts.

collections. It is not a fixed canal, but freely movable, and is materially influenced by the acts of respiration, depressed during inspiration, rising again during expiration. The position of the bladder, the distension of the rectum, the state of the superincumbent viscera, pressure on the abdominal wall, all affect the vagina. The dense bed of cellular tissue which unites it to the base of the bladder, and still lower down, and more intimately, to the urethra, affords a clue to the association of movement between the bladder, uterus, and

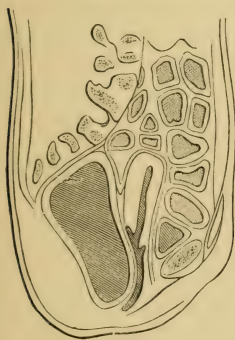


FIG. 3.—From Braune, showing Distended Rectum, and Empty Bladder (Piragoff's Section).

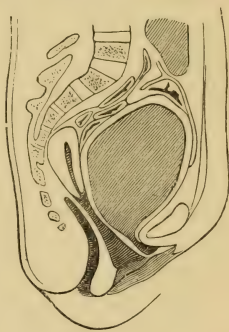


FIG. 4.—From Braune, showing Distended Bladder (Piragoff's Section).

vagina. Its connection posteriorly to the rectum, through the peritoneum above and loose cellular tissue inferiorly, explains a similar association of movement with the rectum, though in a less degree.* We have thus a movable muscular tube, influenced on all sides by the surrounding viscera, having walls endowed with considerable elasticity. It has intimately connected with it an organ whose weight and position vary from time to time, subjected to much the same influences from its surroundings as the vagina itself, and by which canal it is in great measure supported. The

* See fig. 8.

only sound gynecological view to take of the vagina is to regard it as the important bond of union between the uterus, rectum, and bladder, while forming with the perinæal body the support inferiorly of the uterus. Its muscular walls further endow it with this supporting power. But the terms 'canal' and 'tube' are apt to give the student an erroneous impression. They give the idea of a cavity. True, in old multipara, in cases of procidentia, when we have uterine displacements, or at times when we have abnormal states of the bladder or rectum, and of the reflections of peritoneum connecting the uterus with these viscera, the vaginal walls at the fundus may be separated. But we have only to watch the passage closing after an ordinary examination, or feel for ourselves—in the introduction of the finger—the close apposition of the vaginal walls, to be convinced that the normal condition of the vagina is one of complete closure. Two most important purposes are thus effected. Greater support is obtained for the uterus above; the entrance of putrefactive elements is prevented from below. In atonic states, when the muscularity of the vaginal walls is lost, we lose much of this advantage, the uterus sinks, and if, as unfortunately is often the case, the perineal body has also suffered, and is deficient in tone and vitality, or still worse, has been injured by previous deliveries, the displaced uterus becomes still more displaced, dragging with it the anterior vaginal wall, which in its turn descends, and we have the first stage of the subsequent procidentia or prolapse. I cannot but feel that with the modern rage for so-called 'supports,' and our muddled mechanical ideas of pessaries, the varieties of which are so infinite, man's ingenuity is taxed to the uttermost to destroy that very uterine support which nature has devised. *I speak of their misuse*, not of their scientific and legitimate application. Perhaps no gynecological appliance

is more commonly abused than a pessary. To fix a rigid and *immovable* bar or ring in the normal vaginal passage, is essentially barbarous and unscientific. Yet this is what is done in thousands of cases every day by men ignorant of the first principle of a uterine lever support, until we have occasionally to cut it out of the vaginal wall in which it has formed for itself a bed.*

The vast extent of the mucous membrane lining the vaginal passage explains the difficulty we experience in curing vaginitis and the severity of gonorrhœal inflammation in the female; its folds and rugæ affording hiding-places for secretion and impure discharges, while its numerous vascular papillæ, (with their investing epithelium removed,) at first congested and prominent, finally become hypertrophied and granular.

THE HYMEN.—I have seen one remarkable case where the hymen was rigid and unruptured, only a small aperture existing, and still the patient became pregnant. This only establishes the fact that penetration is not necessary for the act of conception to take place. Often this thickened hymen gives rise to trouble after marriage. The passage of an expanding trivalve conical speculum with diverging blades, if necessary under chloroform, and the gradual separation of the blades by the screw will at one sitting generally rectify this defect. For the more serious vice, imperforate hymen, the best treatment, in my experience, is a crucial incision, made with antiseptic precautions; and after evacuation of the black, tarry fluid which is generally secreted in this condition, to wash out the vaginal cavity repeatedly with permanganate of potash, bichloride of mercury, or carbolic solutions, applying a T-bandage to the vulva, and pass-

* A few years since, I removed with much difficulty a huge vulcanite ring pessary from the vagina of a patient who had worn it without removal for five years, and recently a rubber Hodge which had remained in the vagina over eight years. It was all encrusted with hardened mucus and calcareous particles. The entire vaginal cervix was eroded.

ing twice daily a small plug of salicylic acid wool soaked in glycerine into the vagina.

When a young girl after the age of puberty, who has never menstruated, is brought to us complaining of ill-defined abdominal pains, and it may be, some attendant constitutional symptoms, we should always satisfy ourselves that there is no atresia of the vaginal passage nor any occlusion of the vulva.* Now and then we meet a case in which rigors have occurred, and high temperature, rapid pulse, severe abdominal pain, local tenderness, with distension, and the physical signs of a tumour, are present. Here, with an imperforate hymen we may suspect peritonitis, retro-hæmatocele, and the greater danger of septicæmia. One rule we should always adhere to in operations for imperforate hymen, is, to operate at the patient's home, have her in bed, and use the strictest antiseptic precautions.

PERINÆUM.†—Sufficient has already been said of this body as a support, to indicate the necessity of attending to any old lacerations or rents. We also learn this important lesson, always to inspect the perinæum after labour, especially after first labour. Many a small rent, the source of future uterine trouble, escapes notice even after ordinary labour. Let us always regard Goodell's two invaluable hints—'*relaxation* of the perinæum' and '*immediate suture.*' The harmful old practice of '*supporting*' it, and the negligence of postponing the closure of the rent, have cost many a woman an infinity of misery, and, through a septicæmia, induced by perinæal wounds made in operating and during the puerperal period, occasionally peritonitis and death.‡

To '*relax the perinæum*' we pass the fore and middle fingers of the left hand into the rectum, and hook forward the sphincter, while the thumb of the same hand retards and modifies the pressure of the advancing head.

The influence of decubitis on the vagina is of importance. In the dorsal position the vagina remains closed; hence

* See Chapter on Atresia. † See Chapter on Lacerated Perinæum.

‡ '*Rupture of the Perinæum,*' by Dr. Joseph Molony, Arklow, is worth perusal (Fannin and Co., Dublin).

after operation we prefer to keep the woman thus : it helps to prevent the entrance of air. In washing out the vagina with the patient in bed, I prefer the lateral or semi-prone position : the fluid returns better. In examination we elevate the hips by a couch slightly raised at the foot ; this position tends, with the patient in the semi-prone position, to open the vagina, relieving it of the superincumbent weight of the abdominal viscera. But most effectively we take advantage of gravity in the knee elbow, or genu-pectoral position : the woman converts her elbows, chest, and knees into a form of tripod (Fig. 5). The hips and buttocks are thus raised, the viscera are thrown downwards and forwards, the ovaries—as Goodell naïvely expresses it—‘are put to bed.’ It is in this position we avail ourselves of in vaginal operations, especially vesical, rectal, and uterine fistulæ. In it the vaginal walls separate, and most readily open when the examining finger is inserted.*



FIG. 5.—Genu-pectoral Position.

THE POUCH OF DOUGLAS.—This important space, formed by the utero-rectal folds of peritoneum, is the receptacle occasionally of an intestinal loop, a prolapsed ovary, cystic tumours, ovarian tumours, effusion of lymph, pus, and blood (hæmatocele) ; encroaching on it also we may find a retroverted uterus, and pressing upwards into it in extreme cases of anteversion the cervix uteri. Obstructing it posteriorly, we meet with, from the rectal side, fæcal accumulation and malignant growths of the rectum. In ordinary conditions the rectal and uterine walls of Douglas's space are in apposition ; they are separated by tumours, effusions, and anteverted and anteflexed states of the uterus. To examine this space, which is always essential in any suspicious case

* We have also to remember the mechanical pressure exercised on the uterus and vaginal walls by the imprisoned air which accumulates in the vagina during manipulation in this position.

of uterine enlargement or rectal inconvenience, an enema should first be administered, and the rectum carefully, gently, but thoroughly explored with the finger. I have only to remark on the necessity for gentleness in all such manipulations. It is better first to partly introduce the forefinger of the left hand, well anointed with vaseline, slowly stretch the external sphincter to either side, and then gradually insert the entire finger and explore the rectum; we may detect internal hæmorrhoids, or a stricture, or a collection of fluid in Douglas' pouch, or uterine retroversion or enlargement. In pelvic cellulitis, perimetric and parametric effusions, such an exploration is essential to endeavour to define posteriorly the nature (yielding or unyielding) of

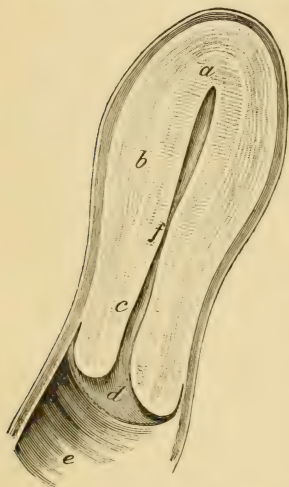


FIG. 6.—Vertical section of Uterus (Ramsbotham).

such effusions. Thus also we may often best ascertain the size, sensitiveness, or degree of congestion of the ovary. I need say nothing of the disgusting system of periodical dilatation of the rectum (even under chloroform) for an excessive reflex irritability of the sphincter, with dryness of the mucous membrane, brought on occasionally by erotic practices, and I fear also by too frequent medical manipulations.

THE UTERUS.—It is right that we should always have before our mind what are the dimensions, size, and weight of the healthy uterus in the young virgin, and in the adult and multiparous woman. I take those of Richet and Sappey.

* See Chapter on the Rectum.

UTERUS.

Measurement in inches.

	Virgin.	Nulliparæ.	Multiparæ.
Entire Uterus, longitudinal	2.20	2.52	2.72
„ thickness .	0.85	0.90	1.00
„ transverse .	1.22	1.80	1.90
Cavity of uterus, transverse	0.60	1.08	1.24
„ length .	1.80	2.20	2.44
Isthmus uteri, length .	0.20-0.25		0.16
„ width .	0.16		
„ antero posterior	0.12		
	Grains.		Grains.
Weight	360 to 1000		1200 to 1800
Capacity		2.3 c.cm.	3.5 c.cm.

The uterus in the normal condition should not be felt above the pubes. It may be felt over the pubes at the third month of pregnancy, and two fingers' breadth above it at the fourth. In the natural state it lies anteverted in the

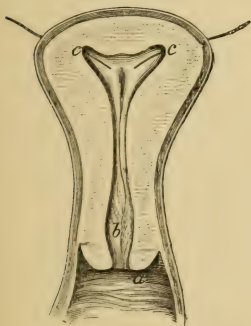


FIG. 7.—Lateral section of Uterus (Ramsbotham).

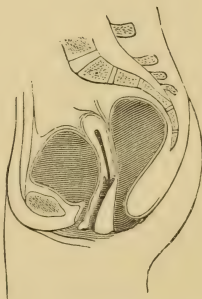


FIG. 8.—From Braune, showing Uterus pressed upon by Distended Bladder and Rectum (Legendre).

pelvis. It is included between two lines, one drawn from the sacro-vertebral angle to the lower border of the pubic bone, and the other carried from the inferior margin of the

fourth piece of the sacrum to the lower border of the symphysis. The axis of the uterus, roughly speaking, corresponds with that of the pelvic brim. It is well to remember how freely movable the healthy uterus is, *slung*, as we correctly say, in the pelvis, by its various ligaments. This mobility is influenced by the size of the uterus, by the condition of the surrounding cellular tissue, and the state of the pelvic ligaments;—*fixation of the uterus* being one of the most important guides in the diagnosis and prognosis of various uterine affections. It is frequently fixed in fibroid enlargement, in malignant disease, and by effusions in parametritis and perimetritis. We are enabled, from the normal size and dimensions of the uterus, comparatively to estimate its increase in size in certain morbid states, notably in fibroid enlargement, and subinvolution. The dimensions of the isthmus explain to us the difficulty occasionally met in passing the uterine sound, and, still further, how essential free dilatation of the sphincter uteri is in any form of intra-uterine medication; how readily the narrow canal may be closed by reflex spasm, by irritation, or inflammation, and thus imprisonment of secretions or medicated solutions take place in the uterine cavity. But just as important is the situation of the isthmus uteri with regard to the reflected folds of peritoneum, utero-rectal and utero-vesical. Above and below the isthmus uteri the organ is free, being supported just at this part by the bed of cellular tissue which surrounds it. The organ is thus balanced in the pelvis by the reflection of peritoneum and encircling cellular tissue. These facts explain the proneness of the uterus to bend backwards and forwards just at this situation—a bending still further increased by the consequent constriction of the blood-vessels at the junction of the cervix with the body, and an increase of weight posteriorly or anteriorly from congestion of the tissues in the posterior

* The uterus is also fixed in some cases of retroversion where adhesions exist.

or anterior wall of the fundus above the seat of constriction. Constriction leads to congestion, congestion to hyperplastic effusion, and this to abnormal tissue-formation, which ultimately tends to contraction, and resulting flexion; flexion produces narrowing or twisting of the uterine canal at this spot, and stenosis, with all its consecutive ills.

This gives us an insight into the natural sequence of changes that tend to produce congestion of the fundus uteri, stenosis of the cervix, hyperplastic effusion, versions, flexions, fibroid development in the uterine walls, hardness of the cervix, amenorrhœa, dysmenorrhœa, and sterility. This freedom of movement teaches us also how important it is not to overlook the uterus as a source of vesical irritation, retention, or incontinence of urine. I once had a case in which for twelve years there was incontinence of urine, until, ultimately, the patient, a lady, was shut out from the enjoyment of society, and had always to wear a napkin or urinal; life was miserable, from the constant passing and dribbling of the urine. She had been placed under a variety of treatment. I straightened an ante-flexed uterus, inserted at first a galvanic stem pessary, and afterwards a Coghill's stem with a vaginal ring, attended carefully to the bowels, and restored the general health with tonics. For many years past this patient has been restored to perfect health and comfort, nor has there been the least tendency to any unusual irritation of the bladder.

Uterine fibroids, collections of fluid or old effusions in Douglas's space, relaxation of the utero-sacral supports, will also throw the uterus forwards, and press it against the bladder. How obviously prudent, then is the general rule in all cases of vesical trouble in women, where no ready explanation is otherwise afforded, to make an examination and ascertain the condition of the uterus. The ready manner in which slight swelling of the mucous lining of the narrow

canal of the isthmus uteri may cause its closure and imprison secretions, forces on us the importance of the golden rule, always to dilate the canal of the cervix before internal medication of the cavity of the fundus, and to maintain that dilatation when there is any suspicious flow, especially of a hæmorrhagic character, from the interior of the uterine cavity.

This same fact shows how futile are those abortive attempts to treat mechanical dysmenorrhœa associated with sterility, or ordinary congestive dysmenorrhœa consequent upon stenosis of the os uteri, by any of those playful slitting operations of the cervix that do not reach the real cause of the obstruction, disappointing alike the patient and practitioner. The stress laid on the essential axiom, to thoroughly divide the canal of the cervix uteri, in cases of stenosis, when operating for dysmenorrhœa and sterility, was one of the features in the impressive teaching of the late lamented Dr. Marion Sims, a passing tribute to whose memory and genius, having known him personally for some years, I may be permitted to make.*

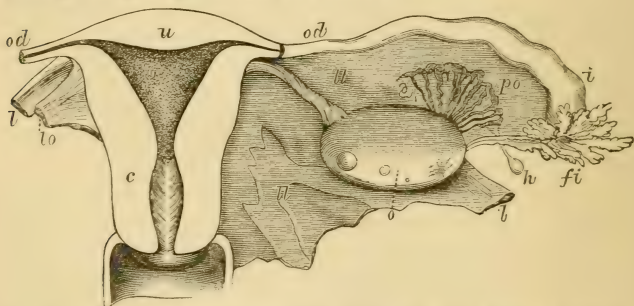


FIG. 9.—Uterus and Appendages. Diagrammatic View (Quain's Anatomy.

THE UTERINE LIGAMENTS AND THE PELVIC FASCIA.—While the mechanical purposes secured by these ligaments are not forgotten in supporting the uterus and maintaining

* The practitioner will read with pleasure and profit Dr. Marion Sims' Clinical Notes on Uterine Surgery.' (J. H. Vail and Co., New York.)

it in position, more especially the utero-sacral, broad, and round ligaments, there are some other matters connected with their attachments and relations that must not be overlooked. The uterus is mainly prevented from falling downwards and forwards by the utero-sacral folds of peritoneum ; in the dragging and stretching of these we have doubtless a ready explanation of the characteristic pain felt over the sacrum in certain cases of anteversion. The vascular and sensitive round ligaments, doubtless, contribute their share to the support of the uterus, and may serve to favour conception (Rainey), through the muscular power with which they are endowed, in altering the direction of the uterus. When they are put on the stretch and dragged on, in displacements and in procidentia, we have a satisfactory clue to that characteristic pain running in the course of these ligaments, so frequently accompanying ovarian pain in congested states both of uterus and ovaries.* The association between over-distended conditions of the bladder and uterine discomfort, we have an explanation of, in the connection of the bladder and uterus through the utero-vesical ligaments, while the general distribution of the uterine and pelvic peritoneum, and the intimate association between it and the extensive fascia of the pelvis offer a ready explanation of the rapid transitional phases of uterine and pelvic inflammation—metritis passing into perimetritis and pelvic cellulitis, and the further complication of general peritonitis as a sequence to both. From the broad ligaments above to the sciatic notches below we have the complete continuity of the cellular tissue maintained. A match struck at one end of the train quickly lights the mischief, that, with lightning rapidity, often spreads, until the entire pelvic viscera are involved : they are thus pushed and pressed against each other by the effusion, the force of the conflagration being still further

* See Chapter on Retroversion and Retroflexion for Alexander's operation of shortening the round ligaments.

heightened by the adjacent peritoneum taking on inflammation, and a localized or general peritonitis ensuing.

INFRA-VAGINAL PORTION OF UTERUS AND OS UTERI.—The infra-vaginal portion of the uterus, or that projecting into the vaginal passage, has, at the apex of the rounded cone, the opening leading to the canal of the uterus.* The length of the infra-vaginal portion varies, but its average length may be taken at from half to three-quarters of an inch. By the length and shape of this vaginal portion, and the character of the os uteri, we can form a fair opinion, in the first instance, of the condition of the uterus. Its shape and size may be altered; either it is considerably shortened, or, on the other hand, greatly elongated and hypertrophied; instead of the characteristic feeling yielding a little to the finger, it may be either very soft, or, on the contrary, hard and resisting. Take as an example of the former condition the uterus of pregnancy, and of the latter the hardened cervix in fibroid tumour, or the characteristic hardness of scirrhus. It may be nipple-shaped, as in many cases of fibroid; and the infra-vaginal portion may appear to the examining finger to move over the body of the uterus, like the nipple of the breast, or a hard mammary tumour. Or the conical form may be lost, and we search for the small ‘pin-hole’ orifice of the os uteri and detect it at times with difficulty. Or the short cervix runs sharply to a pointed cone, in the very apex of which is the orifice of the os externum. The os uteri likewise varies in shape, size, and character, from the typical os uteri with its anterior and posterior lips running transversely—giving to the finger (Cruveilhier) the sensation like the feeling of the cartilage at the end of the

* The importance of the division of the cervix uteri into a supra-vaginal, infra-vaginal, and intermediate portion, is obvious when we consider the pathology of prolapse or hypertrophic elongation.

nose—to the mere slit, slight fissure, or small circular aperture, and even at times absence of the orifice and atresia of the uterine canal. In this we have the source of much of the misery that is associated with dysmenorrhœa—ovarian pain, congestion, and sterility, the consequences of mechanical obstruction. In multipara we may find it large and dilatable, perhaps admitting the tip of the finger; or fissured and lacerated as a consequence of labour, and, possibly, instrumental delivery. In pregnancy we have it partaking of the characteristic general softening of the cervix, and hence it has more of a velvet-like feeling, and is soft and patulous. At times we find it, as in endocervicitis,

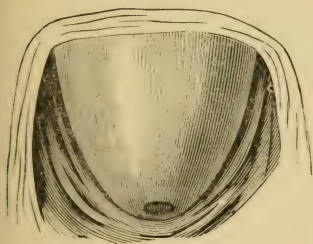


FIG. 10.—Conical Cervix.

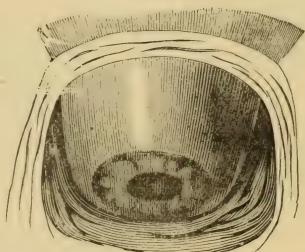


FIG. 11.—Os Uteri of Pregnancy
(after Ramsbotham).

filled with a tenacious plug of mucus, which, in varying degrees of ropiness, hangs from it, and is so difficult to wipe away—a frequent cause of sterility. At other times we see the lips of the os uteri eroded, the epithelium partly denuded, and a vascular villous surface exposed, or a granular state of the os and surrounding cervix. In such case it bleeds readily, and on the slightest touch, partaking of that congested state of the entire cervix which is present with varying degrees of cervical endometritis.

UTERINE AND VAGINAL SECRETIONS.—There are some general considerations which bear on our knowledge of

uterine and vaginal normal secretions and discharges. It is well to remember the close and intimate connection and permeability of the uterine tissues, as well as their porous nature. This is of importance, and explains those metritic troubles which arise after intra-uterine medication, independently of the passage of any fluid into the Fallopian tube. The size of the uterine veins explains the frequent occurrence of thrombosis and septicæmia; the large number of lymphatics distributed throughout its tissues, and their free communication with the lumbar and pelvic ganglia, renders this organ peculiarly prone to septic absorption. The mucous plug that fills the cervix uteri helps to ward off



FIG. 12.—Congenital Stenosis (Schroeder).

septic change by preventing the admission of air into the uterine cavity. In its exaggerated and altered state this secretion, which forms a most tenacious discharge, somewhat like unboiled white of egg, is difficult to remove or arrest. It comes from the cervical glands, is alkaline, is washed away by the menstrual flow, and when normal in character does not interfere with the passage of the spermatozoa.* The epithelium found in the discharge is dentated. The

* For the effect of the vaginal and cervical secretions on the spermatozoa, see Chapter on Sterility.

mucous membrane of the cavity of the uterus and of the Fallopian tubes secretes, on the contrary, a whitish alkaline mucus, not so tenacious, with columnar ciliated epithelium contained in it.

At times this secretion is profuse, and on examination with the speculum, we see it poured out in quantity from the uterus. Very different is the secretion commonly found at the fundus of the vagina, and the neighbouring cervix uteri. It comes from the outer surface of the cervix and adjoining vaginal wall. The epithelium is squamous the reaction is acid. The remainder of the vaginal mucous membrane secretes an acid (squamous) mucus, and the sebaceous glands of the vulva pour out an oily secretion. (I shall say more of these discharges further on.)

THE FALLOPIAN TUBES.—Situating in the broad ligaments, and floating free in the pelvis, the Fallopian tubes are liable to twists and bends, and to contract adhesions to adjacent parts, while their connection with the ovaries and uterus renders them liable to every influence which any change in position of these latter organs exerts. Owing to the small calibre of the uterine portion of the tube (0·12 of an inch in diameter), and the fact that its orifice is filled with mucus, it follows that fluids are, as a rule, prevented from passing from the uterine cavity into the Fallopian tube. But if this plug be disturbed, or the tube be more patent than usual, fluids may then readily find their way into the peritoneal cavity. Dr. Tyler Smith, recognising the patent condition of the uterine orifice, suggested catheterization of the tubes in cases of obstruction, tubal gestation, etc. Dr. Matthews Duncan has drawn attention to this abnormal patency, and has pointed out that it affords an explanation of the passage of the sound out of the uterus in certain cases. This I satisfied myself of in a woman sent for operation for ovarian tumour. The

sound passed on several occasions readily its entire length, though the uterus was not enlarged, as proved after paracentesis. The explanation was the passage of the instrument into the peritoneal cavity through the patent orifice.

Repeated attacks of ovaritis, recurrent pelvic peritonitis, adhesions following pelvic cellulitis, all influence the position of the tubes and their power of grasping the ovary. Hence we so frequently find thickened states of the broad ligaments, adherent ovaries, contractions and adhesions in the vaginal roof, in cases of sterility. Thus the menstrual secretion may be retained in the Fallopian tube. This retention, and various other causes, may lead to its dilatation, while fluid accumulation and cysts are occasionally the cause of its distension.* The occurrence of salpingitis, as a consequence of inflammation of the cavity of the uterus, and especially following gonorrhœal infection, is also readily understood.

THE OVARY.—The ovary at either side of the pelvis is in its normal state about the size of a large almond, weighing from 80 to 90 grains. Its exact position is determined by the surrounding viscera, though the gland as a rule lies posteriorly and laterally in the pelvis, the left being in close proximity to the rectum, and about one inch from the uterus. According to Henle there are some 72,000 Graafian follicles in the two ovaries; the escape of the ovules and the ovum gives us the false and the true corpora lutea. The process of ovulation (not necessary to be described in this manual) occurring once every twenty-eight days, is accompanied by the rupture of one of these follicles. These periodical ovarian enlargements are attended by increased flow of blood to the ovary, temporary congestion, and an increase in its weight. Should the Fallopian tube not grasp the ovary when this follicle has ripened and burst, the ovule may fall into the peritoneal cavity, or blood may

* Hydro-salpinx, Hæmato-salpinx, Pyo-salpinx, etc.

escape into it. The ovary and the uterus have such intimate connections, both in their peritoneal coverings and in the arterial and venous supplies of both organs (the utero-ovarian arteries and veins), that any congested condition of the one must react on the other. This is best seen in the contemporaneous and relative increase in size of the ovarian arteries and veins during gestation. Taking this vascular association of the ovary and uterus into consideration, with the equally close lymphatic distribution of both ovarian and uterine lymphatics in the lumbar glands, we have no difficulty in understanding how uterine purulent and septicæmic states influence the ovaries, or the manner in which such serious conditions as pelvic peritonitis, parametritis, gonorrhœal inflammation, are generally attended by a greater or less degree of ovaritis. In the large vascular supply of the ovaries, and the periodical alteration in the quantity of blood circulating through the ovarian stroma—a blood-supply which is frequently depraved—we have explained the many morbid changes occurring in the ovarian tissues, and associated constantly with vicious menstruation. On the one hand, we find congestive states leading to hypertrophy, ovarian apoplexy, rupture of vessels, the formation of cysts or fibromata; on the other, anæmic conditions tending to atrophy, and, in milder degrees, irregular, arrested, or suppressed menstruation. Our knowledge of the physiological function discharged by the ovaries, and the intimate dependence of the woman's physical and mental health on the nature of that act, forces us to regard, as of primary importance to a woman's physical well-being, the health of her ovaries, and the correct discharge of the function of ovulation. No greater advance* in gynecological science has been made of late years than in the operation of removal of the ovaries, associated with the name of Dr. Battey of Georgia,

* I would make an exception in the methods of Apostoli and gynecological electro-therapeutics generally.

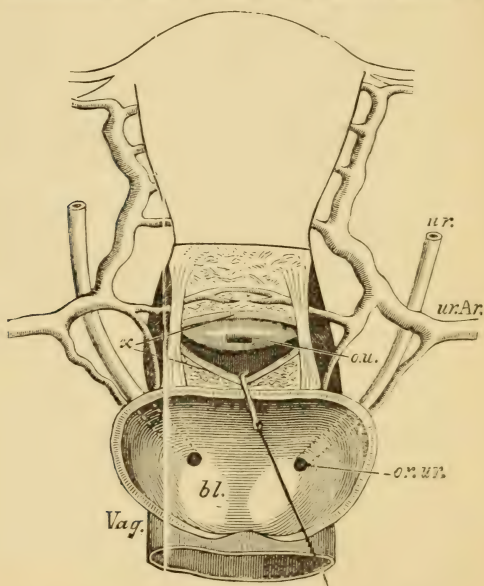
for inducing the premature change of life in woman, in various morbid states of both uterus and ovaries, with which step the name of our distinguished British gynecologist, Lawson Tait, is also so justly connected.

THE RECTUM.*—In practice, the close sympathy that exists between the uterus and the rectum is often overlooked. The habitual neglect of the lower bowel, which is frequently met with in women, is the cause not only of constitutional, but also of many local disorders. Various dyspeptic troubles—headache, flatulent pains, functional heart palpitations, hæmorrhoids—follow from the congested portal system. Rectal irritation, associated with a congested and dry condition of the mucous membrane, is constantly found a companion of different vaginal and uterine disorders. One organ reacts on the other, and the recognised difficulty in curing any rectal affection while a uterine diseased state continues, renders it imperative to relieve the former before we can hope permanently to benefit the latter. This is especially true of fissure, strictured states, fistula, ulcers, pruritus. But perhaps the complication most commonly met with is hæmorrhoids, both external and internal. These are more distressing when there exists at the same time any version or flexion of the uterus, more particularly retroversion—the uterine pressure aggravating the rectal pain and discomfort. The existence of a rectocele, complicating uterine prolapse or injury to the perinæal body, should not be forgotten. The rectum is also encroached on, and the act of defæcation interfered with, in pelvic peritonitis with effusion, pelvic cellulitis, uterine fibroids, various accumulations in Douglas's pouch. In making our first thorough examination of a gynecological case, having by an enema emptied the rectum, we gain our most important information by a careful rectal exploration.

* See Chapter on the Rectum.

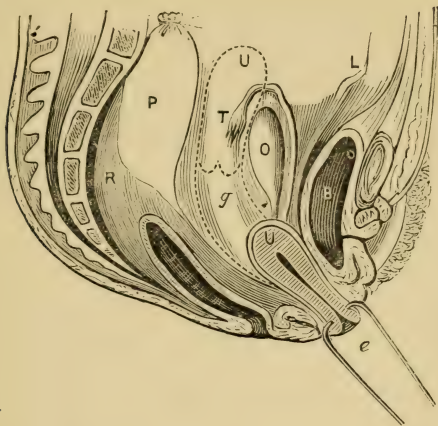
THE URINARY ORGANS. — The gynecological student must have a sound practical knowledge of the anatomy of the kidneys, ureter and bladder. The more one's knowledge of abdominal surgery advances the more we see the importance of such an accurate acquaintance with the position and relation of these viscera. The various morbid states of the kidneys, such as movable kidney, hydronephrosis, pyonephrosis, perinephritic abscess, cystic disease, which are liable to be mistaken or overlooked, in diagnosis, are evidences of this necessity. It is a matter of common occurrence for renal disease to complicate pelvic disorders. It is frequently of extreme difficulty to differentiate between the two. The same observation applies to the differentiation of renal and hepatic enlargements from various causes, or tumours of these viscera. The frequent occurrence of renal calculus giving rise as it does to various reflex or transferred pains; the possibility of a renal tumour being mistaken for an ovarian cyst; the different morbid conditions with which movable kidney is liable to be mistaken—such, for example, as malignant disease of the colon, tumours of the gall-bladder, faecal tumours, splenic tumours—are instances of this. But it is especially in view of the various operative procedures that have of recent years been undertaken for the relief of renal affections, both in the kidney itself and the ureter, that the gynecologist must remember his responsibility, both as physician in diagnosing the disease, and advising an operation, or as surgeon in performing it. Only those who are frequently called upon in obscure cases to make a diagnosis can realize the difficulty there is in arriving at an accurate conclusion in these cases of renal enlargements, more especially if they are complicated with evidence of pelvic mischief, either remote or immediate. The vital importance of extreme care is obvious, as life may be sacrificed from the want of a

simple exploratory incision, or the use of an aspirator. The successful work done in this country, in renal surgery, by Bruce Clark, Greig Smith, Henry Morris, Knowsley Thornton, and others, proves the truth of this statement. The symptoms due to a stone in the kidney in a young girl might be attributed to spinal disease, or uterine or ovarian affection, which may possibly complicate the presence of calculus. The various operations of hysterotomy, especially that by the supra-vaginal method, demand an intimate knowledge of the relation of the bladder and ureters to the uterus and its appendages. I have thought it desirable thus to insist, to the student, on the advantage it will be to him in his after-career to take every opportunity of studying all these relationships, and noting any abnormalities of these



Showing relation of Uterus to Uterine Arteries, Ureters, and Bladder (Greig Smith).

viscera or in their vascular supply, while prosecuting his anatomical studies.



Showing its disturbed relation of parts when the Uterus is drawn down (Greig Smith—after Savage).

Elsewhere I refer to the views of Mr. Bland Sutton and Dr. Johnstone, on the changes that occur during menstruation in the uterine mucous membrane.

Landois and Stirling, in the 'Text-book on Human Physiology,' just published, adhere to the views of Kandrak and Engelmann, that there is a fatty degeneration of the superficial layers of the mucosa, the new mucous membrane being developed from these deeper layers when the period is over.

Referring to the statement in the text of the relation borne by the ovaries to the general well-being of the woman, and the connection between these circulatory changes and those occurring in the Fallopian tubes and uterus, I think it well to epitomize from this text-book this summary of views bearing on the subject:

1. The partial contraction of the muscular tunic of the Fallopian tube assists in the propulsion of the ovum.
2. The bloodvessels of the Fallopian tubes are then injected, possibly by the constriction of the vessels in the broad ligaments, by their non-striated muscular elements. (Rouget.)
3. Pflüger's view is that the physiological 'freshening' of the uterine mucous surface affords nutriment to the newly-received ovum.
4. Reichert's view is (and that of Engelmann and Williams), that the change in the uterine mucous membrane is a sympathetic one,

resulting in sponginess, vascularity and swelling. Thus is formed a *membrana decidua menstrualis*, which is not disintegrated if the ovum is not fertilized, and hence there is no external discharge; this negative sign being the proof of fertilization under normal conditions of health. The occurrence of ovulation and menstruation may not be synchronous, and hence there may be ovulation without menstruation, and *vice versâ*.

It is not to be forgotten that the uterus is capable of contraction under the influence of sexual intercourse, and the expulsion of some of the uterine mucus may thus take place. This reflex contraction may be associated with corresponding contraction of the Fallopian tubes. This has an important bearing on the question of sterility and excessive or imprudent intercourse, which may thus cause loosening or expulsion of the ovum.

I have recently had under my care a married lady, who, under certain influences, and generally associated with the catamenial periods, had violent uterine contractions, in which the vagina participated. I have seen the uterus driven down to the vulvar orifice, and it was impossible at these times to keep a speculum in the vagina. A digital examination was sufficient to bring on these contractions. Fearing that there might have been some intra-uterine polypus or fibroid, I dilated the uterus and explored the cavity, but there was no intra-uterine growth. She suffered from an old laceration of the cervix and some corporeal endometritis and menorrhagia. Free application of nitric acid to the uterine cavity materially benefited her, and so far has relieved the spasms.

CHAPTER II.

THE EXAMINATION OF A CASE.

AS in other organs, that physician is most likely to arrive at a sound basis for his treatment who makes his first examination a systematic and careful one. Many an error in diagnosis might be saved if we adhered to this rule. One word of caution is necessary. While unnecessary examinations of the uterus are, above all things, to be deprecated, on the other hand, nothing can be more dangerous to a medical man's reputation than the neglect of making a careful vaginal examination, when he is in doubt as regards the nature of a difficult case, and one clearly pointing to some affection of the pelvic viscera. Want of caution in this respect has brought many a young medical man into disgrace. Take, for example, hæmorrhage, the result of undetected uterine polypus,* or overlooked malignant disease of the uterus; a vaginal discharge attendant upon pelvic cellulitis; irritability of the bladder, due to a flexion or version of the womb, or to a pelvic hæmatocele, or a uterine fibroid; some difficulty in defæcation, attendant on a tumour, pelvic cellulitis, or uterine displacement; frequency in making water, due to undetected stone in the bladder; a prolonged back-pain, the result of retroversion of the uterus. These are just a few instances of the many cases in which the want of a careful vaginal examination, in the first instance, is certain to reflect discredit, through some undiscovered morbid or abnormal condition of bowel, uterus, or bladder.

* See Chapter on Dysmenorrhœa.

The appliances necessary to make an immediate gynecological examination, in the great majority of instances, are :

Suitable bed or couch.

Tape-measure.

Stethoscope.

Specula (vaginal).

Speculum forceps.

Cotton wool (absorbent).

Uterine sound.

Oliver's test-papers.

Clinical thermometer.

And for further examination :

Cocaine.*

Chloroform or ether and inhaler.

Aspirating needle or subcutaneous injection syringe.

Tupelo or sponge tents.

Uterine dilators.

Uterine holder or tenaculum.

Tent-introducer.

Uterine probe and sound.

Microscope.

I now assume a patient consults us for any uterine or ovarian disease, and one requiring a careful examination, and in which an exhaustive differential diagnosis must be made. We first take the history of the case somewhat in this form :

Age ; occupation ; married or single ; number of pregnancies ; number of abortions ; date of last pregnancy ; if nursing ; age at which menstruation began ; dates of last three periods, its character, quantity, quality, regularity, and if associated with pain ; if there is pain, its nature and seat ; discharges, inflammatory, leucorrhœal, sanguineous ;

* See page 56.

hereditary tendencies in the family history ; state of the bowel ; sleep ; appetite ; exercise (power of walking). It may be well to make a few brief observations on each of the facts thus elicited at our first interview.

HISTORY OF THE CASE.

Age.—The age of the patient has an important bearing on the diagnosis and management. Take for example the time of puberty, with its physiological influences, the commencement of the function of ovulation, all the sympathies which are awakened at this period, the sudden bursting into womanhood, the rapid development of the tissues, and the constant demand for renewal on the blood ; or that equally critical period of life, the menopause, when the active discharge of the function of ovulation is ceasing, and the child-bearing epoch is about to end. With this second complete alteration in the system, we have local determination of blood at irregular intervals to the various organs, more especially the ovaries and uterus, sometimes culminating in local apoplexies, congestion of the ovaries, menorrhagia, the growth of uterine fibroids or polypus, the commencement of malignant disease.

At this period, also, we are likely to meet with vicarious hæmorrhage from distant organs, epistaxis, hæmatemesis, hæmoptysis.* The woman may be troubled with various

* *Vicarious Hæmorrhage.*—The question of there being any such thing as vicarious hæmorrhage has been raised by Dr. Wilks (see Dr. Robert Barnes's paper, British Gynecological Society, April, 1886). For my part, I have no shadow of doubt of its occurrence. I have had several cases in which it was present, as a consequence of suppression of menstruation, or during the commencing irregularity of the catamenia at the menopause. I have seen it in the form of epistaxis, hæmatemesis, and hæmoptysis. One lady I attended for some years, and whenever the catamenia were suppressed for a few periods, she had violent hæmoptysis, alarming to herself and friends ; this has quite ceased, and she is in perfect health. The hæmorrhage generally lasted for two to three days, and was always checked by a mixture of gallic acid, matico.

head-troubles, flushings, pain, megrim, and other important disturbances of the nervous system, as convulsions, or paralysis. Then there is the intervening period of active ovulation, during which—the child-bearing period—the woman is liable to any of the accidents or results that follow from deviations from the normal physiological act. It is then that we have to deal with amenorrhœa, dysmenorrhœa, menorrhagia, leucorrhœal discharges; ovarian troubles, as oophoria, ovaritis; ovarian morbid growths, ovarian solid and cystic tumours; uterine congestions, inflammations, growths, alterations in position, flexions and versions, and all the results of these abnormal conditions. Then, more especially if the woman be married, we meet with those affections which are often directly or indirectly connected with the married state: vulvar and vaginal inflammation, uterine discharges, specific sores and gonorrhœa, perinæal laceration, hæmorrhoids, vesical and urethral complications. Both in the single and married woman, malignant or non-malignant tumours are apt to occur, and in the married the various disorders consequent on lactation.

Pregnancies and Abortions.—The number of pregnancies, with their successive effects on the constitution of the woman and the uterus, is a point of considerable moment. The origin of lacerations of the cervix, subinvolution, fistulæ, vesical troubles, mammary growths, should be traced. The relation of fibroids to the pregnant condition may be ascertained. Repeated abortions and miscarriages lead us to suspect either a habit, or the presence of syphilitic taint, as causes; or they explain some accompanying constitutional fault, and may arouse our suspicion of a latent renal mischief, and we detect albumi-

ergot and digitalis. Before the hæmorrhage, she suffered from fulness in the head and shortness of breath. She was otherwise a robust woman and in good health.

nuria or the urine of granular kidney. These inquiries are assisted by putting cautious questions concerning the living and dead children, the dates of the abortions, and the various periods of pregnancy at which they took place.

Occupation and Habits.—This is the most important consideration after our patient's age; whether she leads an active or sedentary life; if she has to stand much, or do a great deal of stooping work; if she sits up late at night, dissipates, spends a considerable time at the piano, painting, or the sewing-machine; in short, how she generally occupies and amuses herself. This naturally touches on her daily habits—exercise, clothing, diet, and bathing. We may question her or her friends as to the outdoor exercise taken daily; elicit information on such important matters as tight-lacing, tight garters, the manner of suspending the under-clothing, the wearing of flannel, if the temperature of the extremities is attended to. We learn the nature of her food,—if healthful, simple and nutritious, or trashy and indigestible; the times of meals, and the interval between; the amount of alcohol and the quantity of tea consumed. The character of the patient's appetite, the hours of rest, and the amount of sleep are thus arrived at. Not the least important matter to elicit, is, the care bestowed on the skin. The daily bath, suited in its degree of temperature to the temperament of the individual, is perhaps the most healthful custom a woman can adopt. Every woman should have in her bedroom a sponge-bath. If she cannot take the cold bath she can have the water regulated, according to the time of year, from 60° upwards, and proper sponging of the body, followed by friction with a rough towel. Sea-bathing, again, is most bracing and suitable for many constitutions, quite as unfit and hurtful to others. It is well to find out,

exactly, how the sea air and sea-bathing affect individuals before we either permit or recommend it.

Sea Air.—It has to be remembered that sea air has a special effect on menstruation in some women. I have had several cases in which irregularity occurred as a consequence of change to the seaside and sea-bathing. As a rule a bracing climate and mountain air are to be preferred in cases of erratic or suppressed catamenia.

*Menstruation.**—With young girls we frequently find a difficulty in coming to any definite conclusions regarding the regularity, the quantity, and the quality of the menstrual flow—all of them equally important facts. At times we are wilfully deceived, and this must always be remembered in cases in which the least suspicion of pregnancy exists. Here we must place little reliance on assertions, and ascertain, if possible, through a mother or relative, if the patient does become unwell. Mothers are at times careless in watching the occurrence of menstruation; this important duty is left to governesses, schoolmistresses, and servants. Hence, not seldom does it happen that a girl is brought for advice for some anæmic or chlorotic state, and the irregularity of menstruation associated with it has passed unnoticed and unchecked. It is necessary, in such instances, that we should insist on a careful watch being kept on the periods and the character of the discharge. If there be suffering with the period, we learn the time when the pain is most severe; if it precedes the flow, and disappears or continues during its occurrence; if there are nervous disturbances, headaches, symptoms of cerebral congestion or hysterical tendencies. Tinnitus aurium or visual aberrations may guide us to an ophthalmoscopic examination, and the discovery of arterial tension, optic neuritis, and general hyperæmia of the retina. These in their turn will suggest a urinary examination, and possibly the detection of some latent renal disorder. It will be important to date accurately the commencement of any irregularities,

* See Chapter on Disorders of Menstruation.

whether in diminution or excess ; also, if there be menorrhagia, to know whether any slight discharge continues in the intervals between the periods, and its quantity. If the patient has been regular and has ceased to be so, we look for some cause for the first irregularities, as indiscretion in exercise, in dress, in bathing, perhaps mental shock or emotion, or climate, or period of life.

Discharges.—I shall have occasion more fully to refer to the diagnostic importance of uterine and vaginal discharges in another chapter. I may here briefly refer to the character of the discharge which influences the judgment of a practical physician in forming his opinion on any case during examination. A discharge may be in character mucoid, purulent, muco-purulent, sebaceous, sanguineous ; it is described as creamy, flaky, thick and viscid, gelatinous, transparent, and acid ; in colour, greyish, white, yellow, or brown ; at times it is tinged with blood, or it may be of an olive-colour ; it may have a heavy odour or be extremely foetid, or, on the other hand, odourless. All these qualities, as we shall see, indicate, more or less, the source and nature of the discharge. Our opinion is fortified or verified by a microscopic examination, when the presence of pus and the kind of epithelium, whether squamous or columnar, can be determined.

APPLIANCES NECESSARY FOR DIAGNOSIS.—It is necessary to refer to the objects gained by the use of the appliances already alluded to as required in a careful diagnosis.

Bed or Couch.—In order to make a correct diagnosis we have to proceed as follows : The patient is either in bed or on a couch. For all gynecological examinations I prefer a couch. That of Goodell (figured in his ‘Lessons in Gynecology’) I have found to answer admirably in hospital practice. It has, as all good examining couches should have, a dip of three inches at the head, so as to raise the hips ; and by means of a lever handle the upholstered

lid of the table can also be given a lateral dip so as to throw the abdomen forwards, a side-board supporting the body. Foot-rests are added for the feet, and one padded for the left ankle to rest on. When examining, in Sims's position, on this couch, we may readily, with the duck-bill speculum and finger, expose the uterus for demonstration. For private practice a light couch (see Fig. 12*) can be constructed, with a drawer at the end for appliances and small shelf to draw out for resting instruments on. It should be conveniently high for the woman to get on to without any difficulty, and for the operator to sit at the side of to conduct any necessary manipulations. The couch should have an incline from the foot to the shoulders of about four to five inches, and the top can be sloped upwards to nearly the same level as the foot. It is a good plan to have a small table made the same height as the couch opposite the operator's chair, and another chair at the left-hand side at its head, on which a friend can sit, facing towards the patient's feet, over which a light counterpane is thrown. She can thus be cheered and encouraged, while her delicacy is not hurt. It is wonderful how a little gentleness and consideration, with a due regard to a woman's feelings, especially in unmarried girls, enable us to conduct an examination which any roughness or rudeness would make impossible. We can place a woman on her left side, on her back, or in the semi-prone position of Marion Sims. It is almost impossible to get the last-named posture properly in any ordinary bed. Yet it is undoubtedly the most advantageous in many instances, and indispensable in several manipulations of the uterus. For the great majority of first examinations, and where we do not require manipulative interference, it is sufficient to place the woman on her left side, with her thighs drawn up to the abdomen; and if in bed, the body placed diagonally, with the buttocks brought to the edge and the left arm carried behind the



Patient (semi-prone) placed for examination.



Patient (semi-prone) placed for examination and manipulation.

back, the face resting on the pillow. It is best to examine on a hard mattress, and, if necessary, a few pillows may be placed under the hips to raise them. The couch or table must be opposite a good light. After a first examination, and when further exploration of the uterus is necessitated, or the use of the tubular speculum, the dorsal decubitus is the best for the operator and the most convenient for the patient. When we determine to adopt the semi-prone position, we do so thus: Any square table about four feet by two feet six inches, having a blanket smoothly spread on it, answers the purpose admirably. The patient lying down on this surface, on her left side, with the body placed diagonally, the buttocks well to the side, has the thighs drawn up; the left arm is next taken, and the back of the left hand is laid on her right scapula. The right hand is now let hang over the side of the couch, while the face is, when possible, partly turned towards the operator. Thus the sternum and chest are brought well on to the plane surface. At times we may not be able to accomplish this, but we thus secure the most favourable depression of the sternum. If, at the same time, the bed or couch is given a dip, as before described, we have the most perfect position in which to examine and conduct short manipulations by means of the duck-bill speculum. An assistant or nurse to hold the speculum steady and in position—a little art in itself—is required.* I have only to remind young practitioners how careful they must be in taking every precaution to protect themselves from unjust aspersions, by having always at hand, and, when necessary, present in the study, some female attendant or friend of the patient.

* See Chapter on Laceration of the Perinæum and Emmet's Operation for the gynecological crutch of Dr. William Alexander for use in perinæal and other operations, also Clover's crutch.

Attendant in Study.—So many serious charges have of late been made against medical men that I deem it right to emphasize the caution given in the text, to put it out of the power of any designing or hysterical woman to bring a charge of criminal assault against a practitioner by his taking such precautions as will make this impossible. Also, in those equally serious cases in which women, often those of the better classes, come for the purpose of securing abortion, the medical man cannot be too cautious. Women are apt to be most importunate and pertinacious in their endeavours to effect this purpose. A medical man may be made the victim of a plot to throw the blame off the shoulders of another. A woman may wilfully deceive him as to the occurrence of the catamenia or of hæmorrhage, and the impossibility of conception. A false charge of effecting criminal abortion may be trumped up, and if the practitioner be not wary and determined, appearances and circumstances may be urged against him that he could never have anticipated. Circumspection and caution to a degree that may seem almost unnecessary are demanded in order to defeat either hysterical delusion or deliberate intrigue. The obligations of professional honour and fair play impose on all practitioners the need for the greatest care and reticence in listening to any such stories, when whispered of a brother professional. It is to be regretted that many such unfortunate cases would not occur but for the too ready ear of some medical man, who, either designedly or through incaution, has countenanced a groundless suspicion, or favoured a charge absolutely ruinous to the character of him against whom it is made. Such precautions are all the more necessary in these days, when women generally are so conversant with medical matters, and read the details of these cases in the daily press, or gather their information from medical literature to which they have too free access.

The Tape-measure is useful for abdominal measurements. We require to take the circumference at the umbilicus, and the lateral measurements from the spinal column to the umbilicus, and from the umbilicus to the anterior superior iliac spine at either side; also from the anterior superior iliac spine to the symphysis. We thus estimate the amount of abdominal distension, and the size of a tumour, or the relative difference and degree of inequality between either side.

The Stethoscope is required for the differential diagnosis of pregnancy from ovarian dropsy, ascites, fibrocyst and fibroid tumours of the uterus, phantom pregnancy, and other causes of abdominal enlargement. The foetal pulsation and placental souffle are most carefully to be listened for. It is also required for pulsating tumours of the abdomen, in the diagnosis of these from aneurismal enlargement of the vessels.

The Speculum is not necessary in a great many cases where our object is to diagnose the character of a tumour, or the nature of some pelvic swelling or uterine enlargement. Rather in those cases in which, obviously, the affection is a uterine or vaginal inflammatory one, acute or chronic, is its use called for. In virgins its employment is to be avoided whenever possible. Never should it be taken in the hand for introduction, in such cases, unless its assistance is indispensable for diagnosis or treatment. It would be impossible to exaggerate the evils that have resulted from the fashionable abuse of this simple instrument.

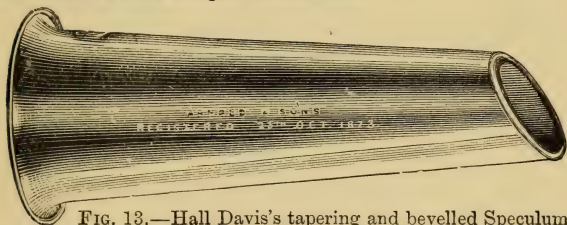


FIG. 13.—Hall Davis's tapering and bevelled Speculum.

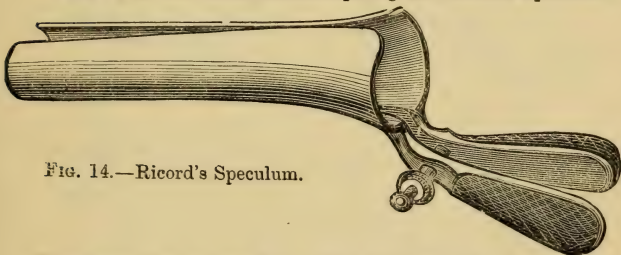


FIG. 14.—Ricord's Speculum.

The speculum must be gently introduced. The impression made on a patient by our first examination may secure her future confidence. Gentleness of manipulation must be cultivated, and especially in the introduction of the speculum. It is best to begin with a smaller-sized conical speculum, such as that of Dr. Hall Davis or Scanzoni. I

* This speculum of Davis should be of *light* metal, the larger size not weighing two ounces. It can be had in three sizes, and reflects light admirably.

prefer the speculum with the bevelled rim, as it does not hurt in the same way as those with the sharper edge.* Specula with obturators will be found convenient and easy of introduction. The short bivalve speculum of Barnes is an admirable instrument. It completely exposes the infra-vaginal cervix. Fergusson's glass speculum (Fig. 19) (of which we require to have three or four sizes) is generally made too long. The uterine end should not be sloped at too

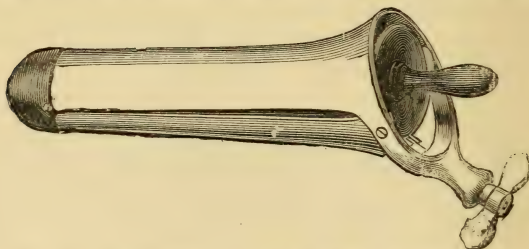


FIG. 15.—Bivalve Speculum of Dr. Robert Barnes.



FIG. 16.—Sims' Duck-bill Speculum.*

great an angle. It throws a good light on the os uteri, and is useful for topical applications. It is now made of toughened glass. A fenestrated speculum (Fig. 18)

* White celluloid specula (Messrs. Maw) are also very convenient; they are easily kept clean, and cannot be broken.

† The blades of the speculum should not be too deeply grooved, nor too long; those ordinarily made frequently are. Every practitioner should have two sizes of the duck-bill speculum.

is not as a rule of any special service. The duck-bill speculum (Fig. 16), or Neugebaur's (Fig. 17) variety of it, is for use in the semi-prone or lithotomy positions. It is indispensable to the gynecologist in manipulations on the os uteri and cervix. Specula must be kept scrupulously clean, not alone for the sake of better illumination, but also to avoid the risk of any contagion in the examination

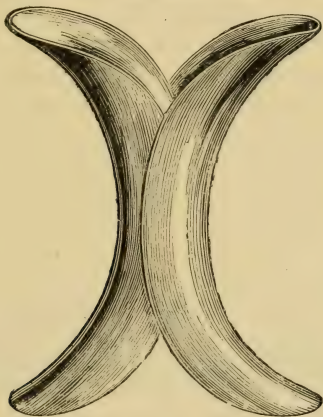


FIG. 17. —Neugebaur's Speculum.

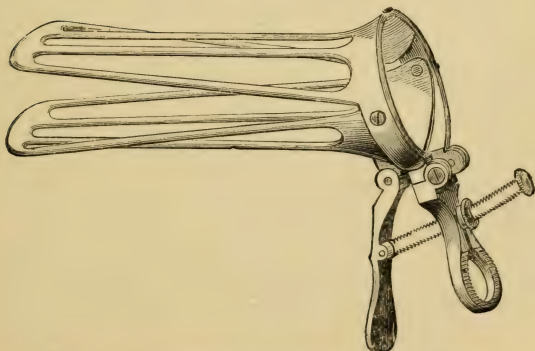


FIG. 18.—Fenestrated Speculum, Cusco's screw.

of several cases with the same instrument. If we use one with a bevelled rim, we should see that the groove is

thoroughly cleansed. It is well to place all specula in some diluted Condyl's fluid after they have been used, and before they are finally washed with very hot water.* To apply a tubular speculum: place the patient on her back, or on her left side, in the position before described. The speculum is first well anointed with oil, or some vaseline; it is taken in the right hand; if the lateral position is chosen, the right buttock is raised with the palm of the left hand, and the fingers of the same hand are used to separate the labia. The speculum with the long lip posteriorly is now pressed gently, but steadily, through the vulvar orifice (and here we may cheer the patient and encourage her to bear the slight pain of introduction). It is now pushed onwards, in a direction upwards and backwards, bearing well on the perinæum, until we

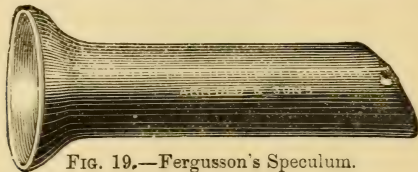


FIG. 19.—Fergusson's Speculum.

reach the posterior cul de sac of the vagina, and get the cervix well into the instrument. At times this is not easy; the uterus may be considerably anteverted or retroverted. A little practice and experience will enable us, with the uterine sound, to direct the os uteri forwards or backwards so as to bring it into sight. By rotating the speculum, withdrawing it a little and reintroducing it, we can generally obtain a complete view of the circumference of the cervix and the os uteri. If we place the woman on her back, we insert the speculum as in the lateral position, and press it well back on the perinæum in passing it into the vagina. In this method the os uteri generally comes into view readily, and the patient can herself often

* Celluloid specula must not be placed in too hot water, or the shape may be altered.

† See page 47, electric-light speculum.

give valuable assistance in supporting the speculum, if we happen not to have an assistant. The speculum forceps (Figs. 27, 28) is required with the speculum, and some pledgets of absorbent cotton-wool ready at hand, to wipe the surface of the os uteri, and to clear the vaginal roof of any discharge that may have accumulated or be pressed out by the speculum. It is well to have at hand a Playfair's uterine probe (Fig. 21), or a few of these, if we require to wipe out from the interior of the cervix any discharge with cotton wool; also an ordinary sponge-holder (Fig. 22). To



FIG. 20.—Playfair's Probe.



FIG. 21.—Playfair's Probe.



FIG. 22.—Sponge-holder.

use the duck-bill speculum, we place the woman in the semi-prone position of Marion Sims, as I have already described. An assistant, standing at the back of the patient, places the left hand flat on the right gluteal fold and holds it well up; the blade of the speculum is now introduced in rather an oblique manner to the orifice, the labia being gently separated; and while it is pushed upwards and backwards it is rotated on its axis, and the back of the speculum is brought against the perinæum. It is then carried into

NOTE.—To expose the os uteri with a tubular speculum, the line of meeting of the vaginal walls seen through the instrument should be kept in the centre of the surface exposed to view.

position, directed by the finger.* Once the speculum is placed in the proper position, and the cervix uteri brought

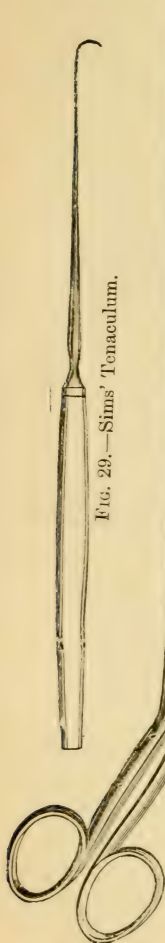


Fig. 29.—Sims' Tenaculum.

Fig. 27.—Rectangular Speculum Forceps.

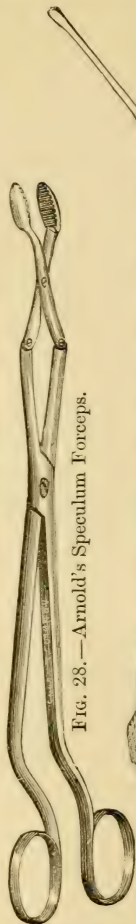


Fig. 28.—Arnold's Speculum Forceps.

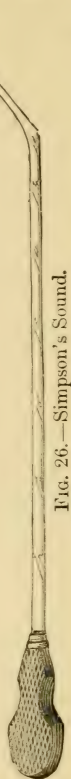


Fig. 26.—Simpson's Sound.

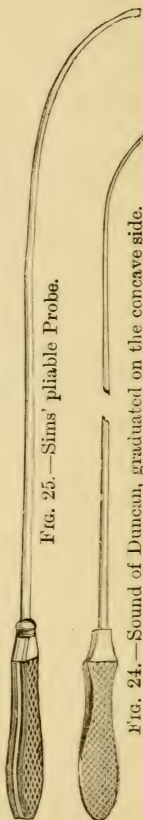


Fig. 25.—Sims' pliable Probe.

Fig. 24.—Sound of Duncan, graduated on the concave side.



Fig. 23.—Small portable Sound, with central screw (Arnold). It fits in the waistcoat pocket. The drawing is about one-third actual size.

* In some operations it will be found that more room is obtained in the lithotomy position and by using two speculæ.

well in front of the blade, the finger of the right hand, or the handle of the sound, must be carried up to the anterior vaginal wall, which is thus held out of the way. The uterus is generally, by this method, well exposed to view. If we require to bring the uterus down for medication, or to steady it for topical application, we use a Sims's uterine hook. It is fixed in the anterior lip of the uterus, and the os uteri is thus drawn into view. Neugebaur's speculum, a modification of Sims's, has, in some instances, the advantage, through its double blade, that it enables the operator to draw up the anterior vaginal wall. When applied, it acts like a bivalve speculum, and is, to an extent, self-retaining. The posterior blade having been applied, the anterior is slipped within it, and is thus guided into position. The vaginal roof is thus stretched, and a good view of the uterus is obtained. There are other modifications of Neugebaur's speculum not necessary to refer to.

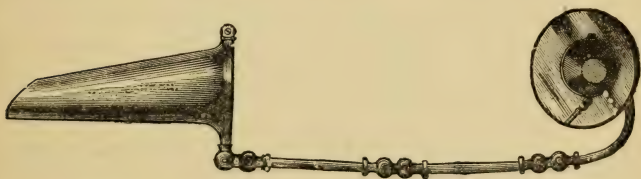


FIG. 29a.—Demonstration Speculum of Author ($\frac{1}{4}$ -size).

Demonstrating Vaginal Speculum of the Author. — The desirability of having such a speculum as would enable the surgeon to demonstrate to a student or students the os uteri and infra-vaginal cervix, in a different manner from that now adopted, and without exposure of the patient, often struck me in hospital work. By such an appliance as that made for me by Messrs. Maw, Son, and Thompson, this can be perfectly achieved. The drawing (Fig. 29a) shows the appliance attached to a speculum. It consists of

a nickel-plated steel bracket with three joints, as shown in the figure, which are so constructed as to enable the mirror to be placed at any angle or plane to the orifice of the speculum, from which it is twenty-five centimetres distant. A clamped ring with a groove receives the mouth of the speculum, and will fit any large-sized speculum. This may be so arranged that any sized ring can be applied so as to embrace a smaller speculum. At the other end of the bracket is a mirror, which works in a universal joint. It is three inches in diameter. If it be wished to get a magnified image, a slightly concave mirror can be attached. The entire appliance is shown folded in Fig. 29*b*. It is quite portable.

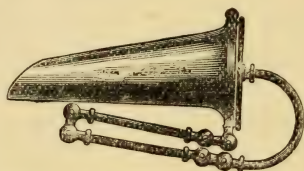


FIG. 29*b*.—Appliance folded ($\frac{1}{4}$ -size).

By means of this instrument the lips of the os uteri can be seen, either by sunlight or artificial light, several feet away. The patient need not be in the least exposed during the demonstration. The teacher having introduced the speculum, and having caught the reflection of the uterus at the plane required, turns the mirror so that anyone standing behind him or at the side, and looking into it, can see both the os uteri or any application which is made to it. It is not necessary to expose more than the orifice of the speculum.

The Uterine Sound (Figs. 23-26) takes the place of a long obstetric finger. A good uterine sound should be pliable and smooth—such as that of Kidd or Marion Sims, and if gradu-

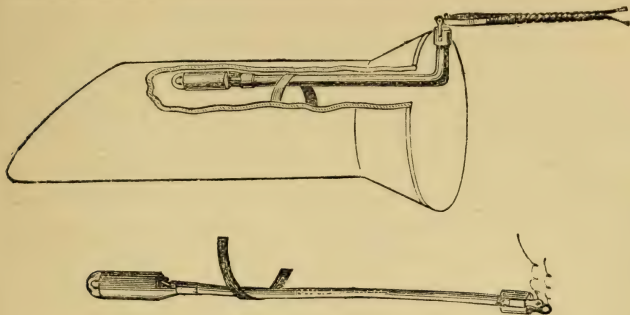


FIG. 29c.—Coxeter's Electric-light Speculum.

Speculum with Electric Illumination.—Various specula fitted with the electric light have been devised. Fig. 29c shows one of these. Furst has devised a self-retaining speculum, to which a self-retaining electric light is attached. One of these electric-light specula can be obtained of any medical electrician. This device of Mr. Coxeter is the simplest I know of, and can be adapted to any speculum.

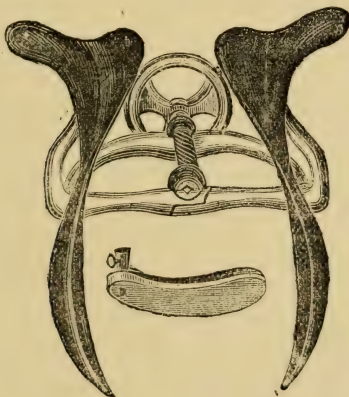


FIG. 29d.—Vaginal Dilating Speculum of Bczeman.
(See Chapter on Urinary Fistula.)

ated it is better to have the scale on the concave side, as that used by Duncan. It can be made portable for the pocket, either by a screw in the centre of the sound, or the upper half of the instrument may screw into a case which acts as a handle. It should not be too heavy. The sound can be used both for diagnostic and therapeutical purposes. In diagnosis, to ascertain the length of the uterine cavity and the patency of the canal, the mobility of the uterus and its position in the pelvis; in utero-rectal and recto-vesical examinations, as in the diagnosis of hæmatocele, polypus, and inversion of the uterus.

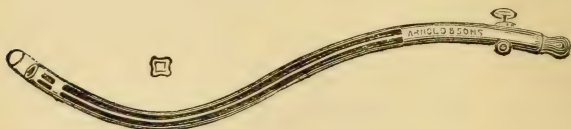


FIG. 29e.—Olivier's Irrigating Sound. Permits the free exit of fluid.

The principal therapeutical purpose of the sound is in versions and flexions, to take the place of a repositor. To introduce the sound into the uterus, we proceed thus :

The patient is placed in the lateral or semi-prone position; the instrument is taken lightly by the handle in the left hand while the point of the forefinger of the right hand is carried up to the os uteri, which is felt, and its direction and the position of the uterus fairly ascertained. The sound is now introduced into the vagina, with the concavity towards the perinæum and the handle directed backwards; it is next guided along the index-finger of the right hand to the os uteri. As a rule, with some little manipulation it enters the cavity of the cervix; it is then carried along the cervical canal, and now the handle is turned in the operator's hand, and by a *tour de maître* is brought round with a gentle sweep, until it is directed towards the perinæum,

so as to have the concavity now facing anteriorly, and thus the instrument is directed into the uterine axis in its normal and slightly anteverted position. It is now carried onwards, passing over the forefinger of the right hand still held in position until it reaches the fundus uteri. This we judge it



FIG. 30.—Introduction of Uterine Sound.

to have done by the slight sense of resistance we feel to the onward passage. We should not make the woman's sense of pain a test. In certain softened states of the uterine tissues it would be possible to penetrate the uterine wall and still cause very little pain.

The usual difficulties experienced in passing the sound are caused by contraction, or stenosis of the canal of the isthmus uteri, or flexions, or versions. There may be such a degree of narrowing that it is impossible to pass the instrument, or we may only succeed with the pliable silver uterine *probe* of Sims (Fig. 25). In versions we must carry the handle well back to the perinæum, or forwards to the pubes, according as we have an anteversion or a retroversion to deal with ; if there be also a flexion, we may have to bend the sound, and endeavour, by giving it the necessary curve, to glide it over the bend. We pass the sound into the bladder in recto-vesical and urethro-vaginal methods of examination. We must always remember the *sine quâ non* of obstetric practice—*before taking the uterine sound* into our hand for any therapeutical or diagnostic purposes, that we exclude the possibility of pregnancy.* Also it is well, after all tedious examinations with the uterine sound, if these are done at the operator's house, to take every precaution against cold ; and the simplest plan to prevent this is to place a dry plug of absorbent wool in the vagina, to be withdrawn by the patient herself after a few hours. In this, as in a number of other trifling uterine operations, the immunity from all harm that may have followed us for years will be suddenly and unpleasantly interrupted when we least expect it—the attack of uterine colic or of endometritis, or perimetritis, is suddenly developed, and alarming symptoms may occur, that a little prudent forethought would prevent. Take for example the neglect of the sound maxim, to refrain from interference immediately before a menstrual period is approaching.

By keeping the forefinger of the right hand at the os uteri, and placing its tip on the concave surface of the sound when

* See Chapter on Disorders of Menstruation—differential diagnosis of pregnancy.

it has penetrated to its full extent, we can estimate, by the graduated grooves, the exact length of the uterine canal. Before removing it we can test the mobility of the uterus, raise it, or replace it in position; and also judge comparatively, by utero-rectal, utero-abdominal, and utero-vaginal examination, of any abnormal connection of the uterus with some neighbouring viscus, or attachments that have formed between it and other morbid pelvic and abdominal formations and growths. In introducing the sound it may be caught and arrested by some fold of mucous membrane, or the knob (which should always be of fair size) may enter a small follicular cul-de-sac. By partly withdrawing, and gently passing it on again, we step over the obstruction. Again, at the isthmus we may find its passage impeded. One golden rule must be observed—never use force. Better to withdraw the knob of the sound from the uterus, and with the finger in the vagina give the point of the sound a new curve, bending it a little more forwards or backwards, or laterally, and again try to slip it into the cavity of the fundus. Frequently in severe cases of anteflexion or retroflexion we will succeed in passing the sound by thus repeatedly altering its shape and changing the direction of the handle, until we hit off that which enables it to pass through the altered curve of the uterine canal. In extreme retroversion we may have to carry the handle of the sound forwards to the pubes, and direct the concavity backwards;*, we next feel for the os uteri, and pass the sound onwards, giving the handle such elevation or dip as will assist the knob to pass on into the cavity. When the elbow is reached, by a semicircular sweep, we revolve the sound on its axis and thus alter its direction, while at the same time, by lowering the handle, we raise the uterus from its depressed position.

* See Chapter on Retroversion.

The Urine.—An examination of the urine is often required, and indeed few cases of any complicated local or constitutional affection can be viewed satisfactorily, either from a diagnostic or prognostic aspect, unless a urinary examination is made.

In Oliver's test-papers we have very delicate tests for albumen; and the examination may be carried out at the bedside, all we require being a small test-tube. I have found the potassio-mercuric-iodide the most delicate of these papers, detecting albumen where heat and nitric acid have failed. The indigo-carmin papers are equally reliable for sugar. We proceed in practice thus:

Take a specimen of the urine. Take its specific gravity at 60°, and reaction with litmus; quantity passed in the 24 hours.

Albumen—sp. gr. 1006 to 1010. Test by Oliver's potassio-mercuric-iodide papers (I find it necessary, in order to avoid error, always to apply heat after a precipitate is obtained with Oliver's paper); heat 180°, and nitric acid a few drops—precipitate; Pavy's citric acid and ferro-cyanide pellets. Heller's test—small quantity of urine and cold nitric acid allowed to run down the side of the test tube.

Phosphates—sp. gr. increased slightly; heat 180°, precipitate obtained, which nitric acid dissolves; phosphatic crystals under microscope.

Urates and uric acid—sp. gr. 1025 to 1030; heat dissolves; hexagonal or rhomboidal crystals of urea, with nitric acid; also uric acid crystals under microscope.

Sugar—sp. gr. 1030 to 1050. Johnson's picric acid test; indigo-carmin test of Oliver, Trommer's and Fehling's tests; Pavy's pellets afford a ready, convenient, and reliable test for sugar (directions accompany).

Pus—Coagulates with heat; deposit forms homogeneous layer at bottom of glass; becomes gelatinous with liquor potassæ; mixes with the urine; pus corpuscles under microscope.

Mucus—Deposit often glairy, tenacious; urine generally alkaline; is not miscible with urine; rendered less dense by liquor potassæ; ascetic acid gives a sort of membrane floating in the urine.

Blood—Discoloration with heat; formation of coagulum; blood corpuscles under microscope. Almen's test—freshly prepared tincture of guaiacum and ozonized ether—blue colour.

Clinical Thermometer.—It may seem superfluous to refer to the value of an accurate record of temperature, morning and evening, in arriving at a diagnosis, and conducting the management of a case. The importance of such a record, however, is made more obvious if we reflect for a moment on the causes of nightly exacerbations of temperature, or a daily elevation of a few degrees above the normal standard. In pelvic cellulitis, pelvic peritonitis, perimetric and parametric effusion, hæmatocele, metritis, suppurating cysts, acute vaginitis; in chronic peritonitis, suppuration of the cellular tissue or of the abdominal glands; in uræmic and septicæmic states, and cystitis, we may expect that the temperature will rise more especially at night.

With the previous history of a case, an accurately kept chart of the temperature will materially assist a physician in forming a correct diagnosis.

An Anæsthetic is absolutely necessary in cases of rectal exploration, when we require thoroughly to relax the abdominal wall; in examination of a case in which there is a suspicion of phantom pregnancy, and in those cases in which, as in young girls, there is great sensitiveness of the parts, rendering an examination without it extremely difficult, if not impossible. All the usual precautions to be observed with regard to anæsthetics should be taken. For this particular purpose I consider chloramyl (chloroform with ℥ ii. nitrite of amyl to the drachm) a capital anæsthetic. It should be administered with a Junker's apparatus. I have been using this inhaler for years. Air is pumped

through the anæsthetic by the bellows, and the vapour is thus carried to the mouth-piece.

For all ordinary surgical operations I prefer nitrous oxide gas and ether—given with Clover's apparatus.*

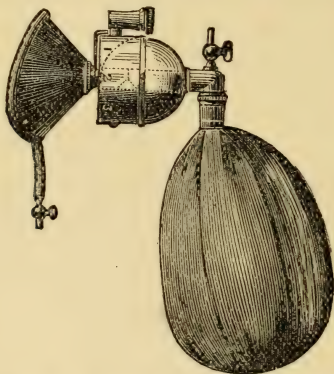


FIG. 31.—Clover's Gas or Ether Inhaler.

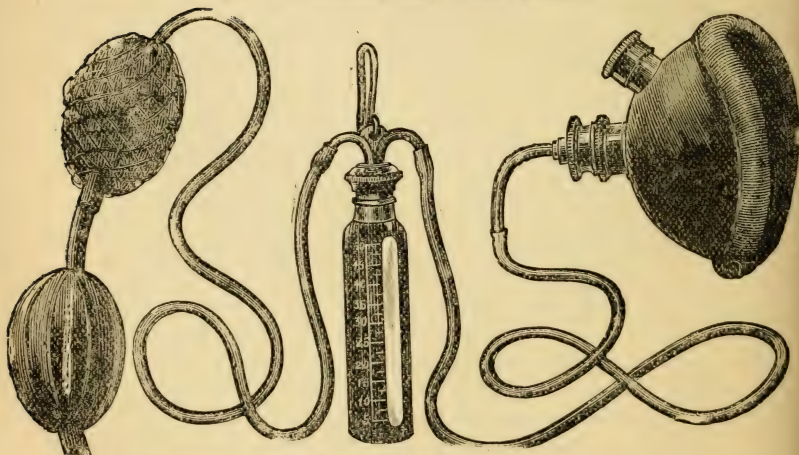


FIG. 31a.—Junker's Inhaler.

* A.C.E. mixture—alcohol, sp. gr. 838, 1 pt. ; chloroform, sp. gr. 1.497, 2 pts. ; ether, sp. gr. .735 3 pts.—may be given in a Clover's inhaler or cone.

For the removal of abdominal tumours—ovarian and other—oöphorectomy, and cases of abdominal section, methylene may be used. It is administered with a Junker's apparatus. I may remark that I have myself administered methylene some 1500 times without any accident; it should be had pure.

A few rules must be observed with all anæsthetics. Examine the heart and lungs before using any anæsthetic. Have the patient lying down; the stomach comparatively empty—a little brandy given shortly before administration is often of advantage; let the temperature of the room be over 50°; let the body be free, and all tight clothing loosened;* watch *the breathing and pulse* carefully and the countenance all through the administration; be warned of danger by failure in the pulse, and the signs either of cerebral anæmia in the face, or of asphyxia. At once, if alarming symptoms occur, cease administration, and use restorative measures; raise the patient's jaw, and thus the hyoid bone, by pulling the lower maxilla upwards and forwards, placing the thumbs behind the ramus at either side; the body may be inverted after Nélaton's method; galvanism may be applied along the course of the pneumogastric or over the heart, and sulphuric ether injected subcutaneously.

Professor Howard, of New York, in a paper read before the Medical Society of London (Oct. 22, 1888), advocates complete extension of the head and neck, as the best means of raising the epiglottis and hyoid bone. He maintains that this plan is much more efficient than elevation of the jaw; also he contends that traction of the tongue does not raise the epiglottis. Bringing the head over the edge of the table or bed, so that it may swing quite free, he carries it firmly backwards and downwards, by placing one hand under the chin and the other on the vertex. The utmost possible extension of the head and neck is thus maintained. The skin is to be made quite

* See that the patient does not wear artificial teeth. Two safe rules in the administration of anæsthetics are frequently violated in practice: (1) The operator should not, if possible, be the anæsthetizer; (2) the administrator should not be conversed with during the administration of an anæsthetic.

tense. Professor Howard's interesting paper is in the *British Medical Journal*, Nov. 17, 1888.

I say in the text to examine the heart before the administration of an anæsthetic. Of course, it is well known that the most experienced anæsthetizers daily administer anæsthetics, ether, chloroform, and nitrous oxide, without taking this precaution. While this is so, I do not think that it is an example to be followed by the ordinary practitioner, or by anyone whose opinion may not have sufficient weight with an ignorant jury. If the anæsthetizer is a specialist or an authority, and considers such an examination a matter of form or superfluous, in the event of a fatal issue he can better set himself right before a coroner's court than one who has not gained such a reputation. Dr. Dudley Buxton tells me, that in abdominal operations, he, as a rule, now gives nitrous oxide gas and ether. He has had in some cases of hysterectomy to abandon chloroform and give ether instead in consequence of the shock. Mr. G. F. Bailey invariably gives nitrous oxide and ether, and prefers it to chloroform. Mr. Tait generally uses ether. Dr. Buxton has applied a foot-bellows to work Junker's apparatus instead of the hand-bellows—this is convenient. I can recommend Dr. Dudley Buxton's little handbook on anæsthetics as a most useful and practical work for the practitioner.

Cocaine.—Local anæsthesia of the external genitals and vagina may be effected by the use of cocaine, either in the form of ointment (5·10 per cent.) or solution. The ointment may be freely smeared over the part or applied on a piece of cotton-wool. In the case of a sensitive vulvar orifice, cocaine may be used for the purpose of examination, but this is rarely necessary. It is most useful in all minor operations on the vulva, and may be applied for any painful operation to the external surface of the cervix. I have performed a variety of operations on the vulva, quite painlessly under cocaine, in which the electric cauterly was employed. If used as an ointment, it is best lanolated (lanoline, 2 parts ; lard, 1 part).

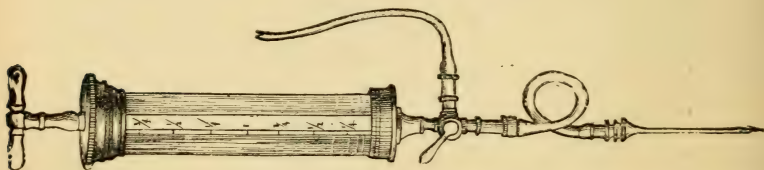


FIG. 32.—Smith's Needle Aspirator.

An Aspirating Needle or subcutaneous syringe is often required to remove a little of the fluid in abdominal and pelvic tumours, to ascertain its nature by chemical and

microscopical examination. We may draw the fluid from the point of greatest distension—either vagina, rectum, or abdomen. The small exploring aspirator (Bartlet) (*vide* Chapter on Pelvic Hæmatocele) will be found very useful in the exploration of small cysts, and for purposes of diagnosis.

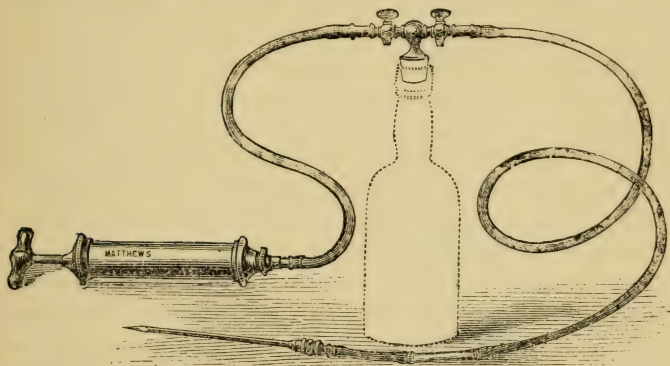


FIG. 32a.—Aspirator (Matthews Bros.).*

Tents (Figs. 33, 34, 35) must be employed in certain cases



FIG. 33.—Tupelo Tent.



FIG. 34.—Sponge Tent.

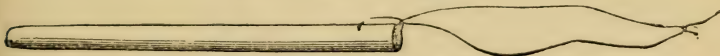


FIG. 35.—Laminaria Tent.

for exploration of the uterine canal, as, for example, in polypus of the uterus, retention of portion of the membranes

* See page 73.

after abortion, in menorrhagia when we are uncertain of the cause of the discharge. Their employment in many operative procedures I shall have occasion frequently to refer to.

Tents are of three kinds—sponge, sea tangle or laminaria, and tupelo-root (*nyssa multiflora*). I feel certain that the better forcible dilatation comes to be understood and practised, the less resort there will be to any form of tent. There are certain dangers that may follow from any kind of tent: uterine colic, collapse, metritis, peritonitis, parametritis, tetanus, septicæmia. I have twice seen a most alarming condition supervene within three hours after the introduction of a single laminaria tent into the uterus—agonizing pain, symptoms of collapse, fainting, etc. Laminaria tents, if left in too long at first, are apt to break off, and their extraction, save by enlargement of the cervical canal, is a matter of great difficulty. Sponge-tents I rarely use in strictly gynecological work. I would limit their employment altogether to obstetric cases. Tupelo gives, as far as any tent can, the greatest satisfaction. It is cleaner to use, not so apt to break, is more uniform in its gradual enlargement in the uterus, is easier of removal; its power of absorption is greater, and hence its action is more rapid.

Some special rules should be adhered to in the use of tents. Do not use them *immediately* before a menstrual period; nor leave them in longer than from six to twelve hours (sponge-tents not over six hours), and never this length of time without visiting the patient; and on no pretext leave a patient for a night, or a day, with a tent in utero without being within reach if required. Give bromide of ammonium (20-30 grains) or bromide of potassium at night, before dilating with a tent. Let the patient lie in bed, and keep her there for a few days after the tent has been used. Do not employ force in its introduction; do not insert a tent when there is any history of recent perimetritis or parametritis, or in patients

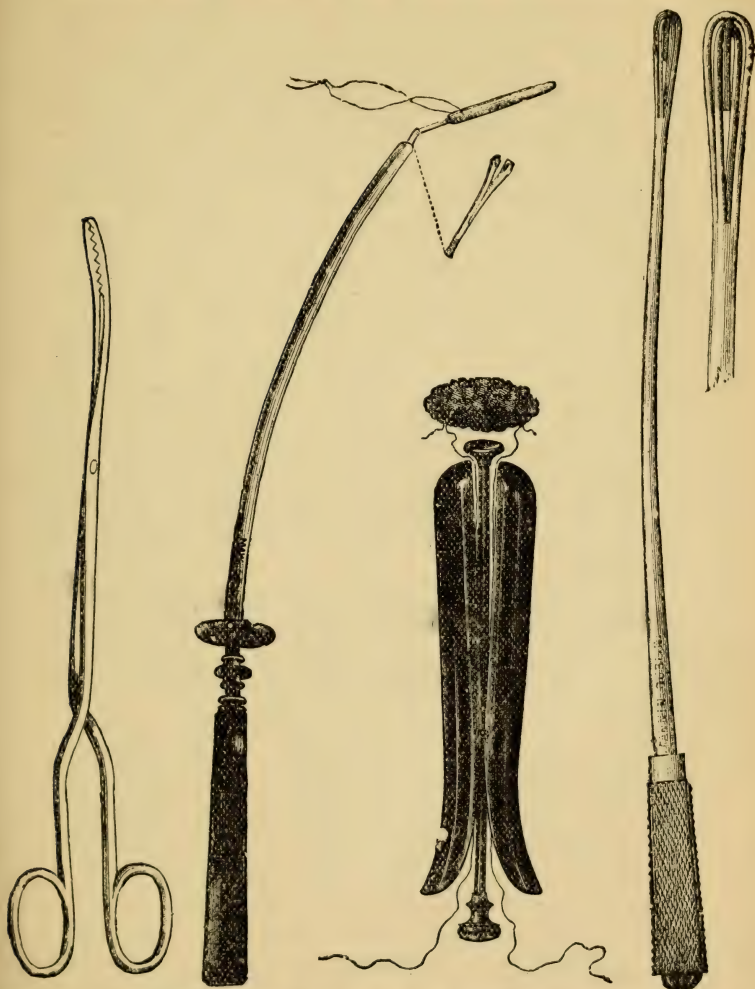


FIG. 36.—Urethral Forceps.

FIG. 37.—Tent Introducer (Arnold).

FIG. 38.—Dr. Robert Barnes' Tampon introducer.

FIG. 38a.—Appliance of Dr. Duke (Dublin), for removing tenacious discharge from cervix.

prone to these inflammations. At all times leave an intelligent attendant or nurse with the case after a tent is placed in utero. Anticipate any septic consequences, so far as is possible, by the use of antiseptic precautions—dipping the tent in carbolized water before insertion, and inserting some salicylic acid wool into the vagina, or absorbent wool saturated with glycerine and some Condyl's fluid; its removal must be followed by free cleansing of the vagina with Condyl's fluid or perchloride of mercury, or hydro-naphthol solution, and the insertion of an antiseptic pledget into the vagina.

When applying a tent we should place the patient in the semi-prone position, and expose the uterus with a Sims' speculum. A tent-introducer will be found convenient. If this be not at hand, the stylet of a catheter, made to protrude by cutting about an inch off the end of the catheter, or a long forceps (Fig. 36) will answer the purpose. If any difficulty be experienced, the uterus had better be drawn well down and fixed with a uterine tenaculum or Sims' hook.

Tents.—I have little to add to the remarks in the text on the employment of tents. I have had very good results with tupelo. Fraipont uses a saturated solution of iodoform and ether, in which the tents are kept for a few weeks before use, and allows the tent to remain in for twenty-four hours, placing a pad of iodoform gauze against the cervix, when the tent is introduced.

Forcible Dilatation may be carried out by any of the different forms of dilators which have been devised for this purpose. In Hegar's (Kumerlé, Freiburg) dilators the size of each is marked on the short handle of the bougie; this is simply a species of catheterization of the canal by short ebonite bougies. I have had specially made for the same purpose, and find they answer much better, solid conical metal bougies of pliable pewter, varying in size from 11 millimetres to 57. They have a bulbous point, with a short neck, which gradually expands into a belly. The curve of the bougie is a circle, having a diameter of 25 centimetres.

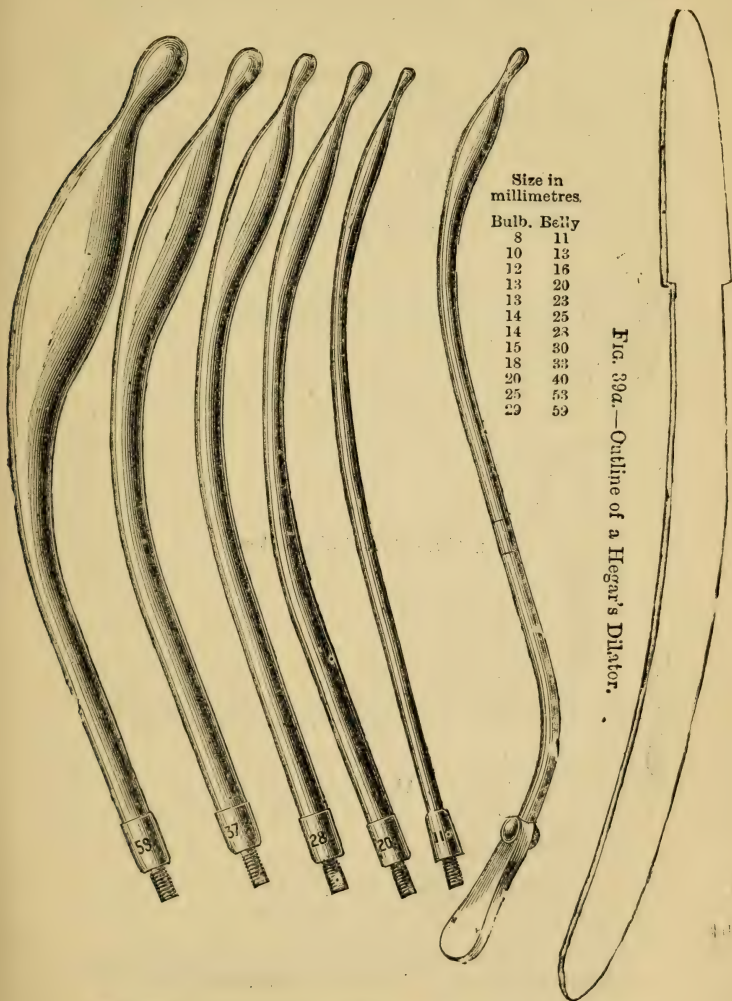


FIG. 39.—Author's Uterine Bougies ; nearly two-thirds size.*

* I had a bayonet-joint substituted for the screw in some bougies latterly made, but I do not find it so satisfactory. The better plan is to have a shorter bougie and no joint.

Any of these dilators can be had of Messrs. Arnold, Smithfield.

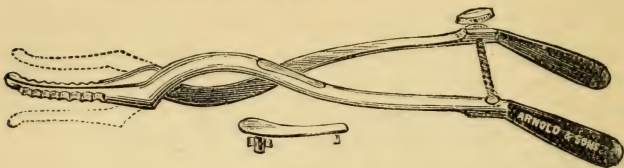


FIG. 40.—Wathan's Uterine Dilator.

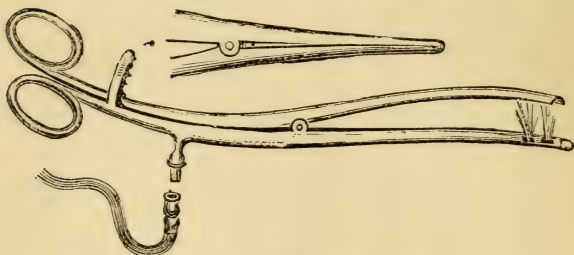


FIG. 40a.—Reverdin's Dilator.

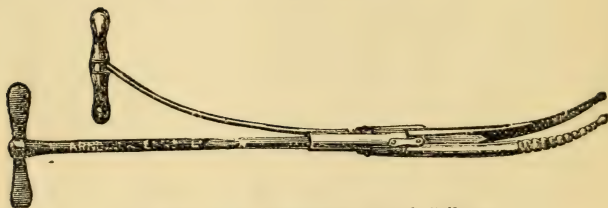


FIG. 40b.—Dr. Alexander Duke's Dilator.

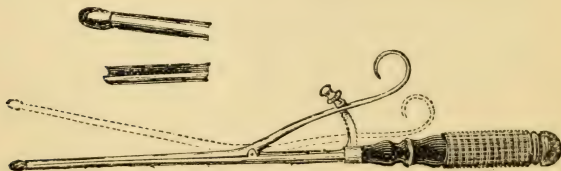


FIG. 40c.—Dr. More Madden's Dilator.

The metal can always be kept smooth and bright, and, when oiled, slips with slight force through the cervical canal.*

Mr. Lawson Tait (Fig. 40*d*) has devised a set of dilators, in three sizes, conical in shape, as shown in the figure. They are made of vulcanite, and screw on to a common stem. By

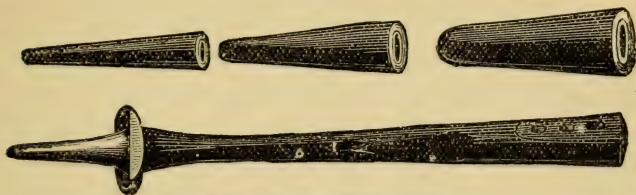


FIG. 40*d*.—Lawson Tait's Dilators.

an elastic thread which passes through the holes in the stem-handle, and is connected with a waistbelt by hooks, any degree of elastic pressure can be maintained on the conical dilator introduced into the uterus. Dilatation can be secured in from six to twenty-four hours.

The Microscope is required for the examination of the fluid contents of tumours, discharges, small scraps of tissue removed with curette from the uterus in suspicious cases, or urinary sediments.

Steel Dilators.—Several varieties of metal dilators have been devised during the last few years, such as that of Wathan. (Page 62.)

Also, Reverdin has devised an irrigating dilator, one blade of which is hollow, to permit any hot antiseptic fluid to flow during the dilatation. Dilatation is said to be rendered more rapid and to be attended with less pain.† (Page 62.)

* See Chapter on Dysmenorrhœa.

† 'Annual of Universal Medical Sciences, 1889.'

CHAPTER III.

EXAMINATION OF A CASE (*continued*).

MODE OF EXAMINATION.—I now assume such a pelvic, ovarian, or uterine case as pelvic hæmatocele, ovarian tumour, or fibrocyst of the uterus, brought for examination. Let us proceed to exhaust the means at our disposal, so as to arrive at a correct diagnosis. Before exposing the abdomen we have taken the previous history, and satisfied ourselves as to the character of the menstrual secretion, the action of bowel and kidney, the temperature and pulse. We judge of the woman's countenance—if cheerful and hopeful, or expressive of pain and anxious; if emaciated or cachectic; if she have the characteristic 'facies ovariana' of ovarian disease. There is in ovarian dropsy a strange mingling of emaciation of the face with some anxiety of the countenance, often out of all proportion to the interruption of the general health: it is altogether different to the countenance of pregnancy, and quite distinct from the cachexia of ordinary malignant disease. This appearance of the countenance, however, we must remember, is influenced by complications, such as phthisis, hepatic or renal disease, pregnancy or malignant disease of the ovary. But in hepatic and renal disease we have other evidence in anasarca, or icterus, or distended abdominal veins, or oedema of the face and hands or feet, or albuminuria, and perhaps cardiac complication, to indicate the cause of the distension. We now proceed to examine the abdomen. I cannot insist too emphatically on the care

with which we should explore the abdomen, before we proceed to any internal examination. We do it thus :

Its Shape.—We notice if it is barrel-shaped and arched, as in ovarian dropsy, or if the swelling is unilateral or uniform ; if the sides bulge, more or less, as in ascites, or if the tumour is evidently central, and if its ratio of increase has been regularly progressive, as in pregnancy ; if there are distinct swellings in different regions, and the surface of the abdomen is irregular in outline, as in multilocular cysts, malignant solid tumours, tumours of the liver and spleen.

The Umbilicus, if it is prominent as in pregnancy ; bulging and watery-looking as in ascites ; drawn in as in solid tumours with adhesions, and in malignant cases.

The Appearance of the Skin, if tense and thin, showing the prominent recti muscles underneath ; or œdematous, with a characteristic watery appearance ; or if it be laden with fat ; if marked with lineæ albicantes, cracks, scars, maculæ, or eruptions.

Measurements : in ovarian dropsy, greatest circular measurement at umbilicus (more likely), below it in ascites ; lateral measurements to determine the symmetrical nature of the growth—during the early months of growth of an ovarian cyst unsymmetrical ; symmetrical in pregnancy.

Palpation.—Nothing save experience in educating the finger to differentiate the various forms of tumours, solid and fluid, and any enlargements of the abdominal and pelvic viscera, can teach abdominal palpation ; it is not to be learned by any verbal description. The size of an organ, the extent of an enlargement, the degree of hardness or softness, the character and extent of fluctuation, the nature and direction of the pain caused by pressure, the appearance of the fluctuating wave, and the sensation of superficiality or depth conveyed to the hand when testing the abdomen for this sign—all have to be kept in mind in

palpation. A few directions may, however, be of service. Have the patient's head and shoulders supported with a pillow; have the surface of the abdomen from the sternum to the pubes exposed; stand facing the patient and lay the palms of the hands lightly and flat on the abdominal wall; gradually pass the hands over the various abdominal regions, hypochondriac, epigastric, lumbar, umbilical, inguinal and hypogastric. With the fingers explore these spaces carefully; watch the patient's countenance for indications of shrinking or pain; define as far as possible the limits of any growth, the region it occupies, its connection with surrounding viscera, if fixed or movable, if hard or nodular, if soft or fluctuating; get the character of the fluctuation, if superficial or deep-seated. Now lay the hand on one side of the abdomen, and tap lightly with the fingers on the opposite side and feel the nature of the transmitted wave; judge, by watching its movement under the skin, of its depth (deeper wave in ovarian dropsy) and, by its freedom of motion in all directions, of the character of the cyst in which it is confined, unilocular or multilocular, and if the fluid itself be encysted or circumscribed, or free.

It is quite possible in a very fat patient to mistake the 'fat-thrill' for fluctuation. 'To muffle this,' says Goodell, 'I ask one of my assistants to lay the ulnar edge of his hand along the linea alba. The pressure of the hand will act exactly like the damper-wedge of the piano-tuner, which muffles the sound of one string while its fellow is being tuned. By this means I get the wave-tap of a fluid, and am enabled unhesitatingly to say that there is a liquid collection in the abdominal cavity.' So a fat abdominal wall may completely obscure the diagnostic aid we obtain from our sense of touch, and has doubtless led to many of the errors of practice recorded and unrecorded, in the operative interference with abdominal enlargement.

Percussion.—We require to distinguish the relative degrees of dulness or resonance in the different regions, above the umbilicus, below it, and in either flank, and the influence of posture on the percussion note. The rule is, that ascitic fluid falls with gravity, (if the fluid be free in the peritoneal cavity and not restrained by adhesion) or into the most dependent position, which is, in the sitting position, the lower zone of the abdomen, and in the recumbent posture, the flanks. Hence these regions will give a dull note.

In ovarian dropsy, on the other hand, the cyst rising up from the pelvis is in front of the intestines, which are displaced to either side, so that the anterior surface of the abdominal wall yields a dull sound and the flanks are resonant. Nor is the dulness changeable with posture, as a rule, and never to the same extent as in complicated ascites. The complication of pregnancy with ascites or hydramnios, of ovarian dropsy with pregnancy or ascites, and the existence of cysts of the liver or kidney which we occasionally find, compel us to be very cautious in placing reliance on percussion in diagnosis. The abdomen must be most cautiously examined for the different conditions likely to be confounded with pregnancy. It requires most patient and careful listening to detect occasionally the foetal heart-sounds, especially if there be a rather fat abdomen, or any ascitic fluid in the peritoneum, or hydramnios, or if the foetal pulsations be very weak and rapid. We have to be careful not to fall into an error that I have known occur in a patient with a very rapid pulse, and having an abdominal tumour which proved to be fibroid; the rapid aortic pulsations were transmitted to the tumour, and an opinion formed, consequently, that the woman was pregnant.*

Digital Examination.—We now proceed to make a vaginal examination. The patient may be laid on her side, or, better, on her back, as I have previously described. The

* The care with which we must guard ourselves against the possibility of error in cases of assumed pregnancy induces me here to insist on the necessity for an anæsthetic in the determination of a doubtful case, and for the exclusion of a phantom tumour. (See Chapter on the Diagnosis of Ovarian Tumour.)

nail of the examining finger should always be pared close. We then anoint the finger thoroughly with carbolised lard or vaseline, and convey it gently into the vaginal canal. Before doing so, on separating the labia, it may be well to inspect the vulva for any swelling, excoriation, discharge, sores, or tumours, and at the same time note the appearance of the clitoris, urethral orifice, hymen (if present), the fourchette, cervix uteri, noting the temperature of the vagina. Having reached the uterus, we examine the condition and feeling of the os uteri, its shape and size, if normal or abraded, soft, patulous, or fissured. The cervix uteri is next examined, as to its position, shape, length, and degree of hardness. Placing the finger firmly on the cervix, we estimate by pressure the mobility of the uterus. At the same time we contrast the anterior and posterior wall of the cervix, examine for any sulcus in the uterus, any special hardness in the uterine wall anteriorly, any fibroid which may here be developing, or anteflexion. The finger is now swept, commencing anteriorly, round the vaginal roof, and any fulness, contraction, hardness, or swelling is detected and examined. The degree of tightness or stretching of the vaginal roof is estimated. We next pass to the posterior aspect of the uterus, and explore the utero-rectal space and the pouch of Douglas. In this latter space we may find a tumour, ovarian cyst, a faecal accumulation, some cellular and peritoneal effusion, retroversion of the uterus, or prolapse of the ovary.* While thus examining, we do not forget the presence of stone in the bladder, which may be detected through the vaginal wall in front. Before withdrawing the finger we satisfy ourselves thoroughly as to the character of recent effusions, the size of the ovaries, or if there is the remains of any old effusion, lymph, pus, or blood occupying the cellular tissue or the peritoneum.

* We take advantage of the act of respiration and the influence of the diaphragm on the pelvic viscera, by directing the patient during this examination to take a few deep inspirations, followed by prolonged expirations. This will help to bring the ovary more within reach of the finger.

Conjoined Examination.—This we carry out either by the two hands or by the sound and hand.

By the hands.	{	Abdomino-vaginal.
		Recto-abdominal.
		Recto-vaginal.
By the sound and hand.	{	Utero-abdominal.
		Utero-rectal.
		Recto-vesical.

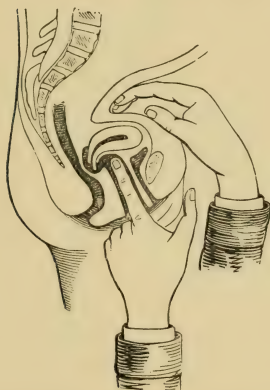


FIG. 41.—Abdomino-vaginal Examination (SCHREDER).

Abdomino-vaginal.—We want to ascertain the size of the uterus, its degree of mobility, its sensitiveness; the condition of the bladder, ovaries, and broad ligaments. We do this in the most satisfactory manner by placing the fingers of the right hand on the abdominal wall above the pubes, and the index-finger of the left in the vagina resting on the cervix (behind it if the uterus be retroverted), thus getting the organ to rest between the two hands in the manner shown in the diagram. In every case of obscure uterine affection, when we wish to know accurately the volume of the uterus and its relative increase in size, this is an indispensable step in our examination.

Recto-abdominal. — Withdrawing our finger from the vagina and again anointing its surface well with some carbolized vaseline, we pass it gently into the rectum; in doing so, we reach, unless the uterus be retroverted, the cervix uteri, and feel it prominent in the anterior wall of the rectum; depressing the uterus well with the fingers on the abdomen, we now reach the ovaries, which can again be explored and their size and sensitiveness ascertained. We may also satisfy ourselves of the volume and position of the uterus, of the dimensions of a fibroid or a retro-hæmatocele; while we likewise judge of the degree of congestion of the rectal mucous membrane, and the extent to which the rectum is interfered with either by cellular effusions, collections of fluid, or tumours in Douglas's space, a retroverted or retroflexed uterus.

Recto vaginal. — Still keeping the finger in the rectum, we insert the index-finger of the other hand into the vagina, or if we prefer it, we may withdraw the index-finger and introduce the middle finger into the rectum, while we explore the vaginal wall with the index-finger of the same hand. Examination of the rectum often gives such distress to the patient that the less frequently we introduce the finger into it the better. Therefore, I generally prefer to use the index-finger of the right hand in the vagina, the woman lying on her back, the left forefinger remaining in the rectum. We can thus in the very best manner determine the state of the rectum, the utero-rectal space, the position and size of the ovaries, the character of any tumour, swelling, or effusion between the uterus and rectum.

Recto-vesical. — We may now take up the uterine sound and slip it into the bladder while we retain the finger in the rectum. We thus are enabled to judge of the position and size of the uterus in fat women, in whom palpation is difficult, of its presence in atresia of the vagina, of its

absence in inversion of the uterus, and thus to diagnose between inversion and polypus. While the sound is in the bladder, if there be vesical irritation, we may explore its cavity, judging of its capacity and how far it is encroached on by the *uterus*, while we exclude the existence of stone. (Fig. 42.)



FIG. 42.—Recto-vesical examination in complete Inversion of the Uterus.

Utero-abdominal. — Having passed the sound into the uterus and judged of its sensitiveness, position, and mobility, and the length of the uterine cavity, or the presence of any obstruction, we place, as before, the finger of the right hand over the pubes and manipulate the uterus on the sound. In diagnosing the relations of abdominal tumours, their connection with the uterus, and the extent to which the uterus is involved by fibroid

growths, or polypus, the utero-abdominal method will be found to give most valuable assistance.

Utero-rectal.—Still retaining the sound in the uterus and passing the finger into the rectum, we can, in a similar manner, examine the posterior wall of the uterus, judge of intramural fibroids, any adhesions posteriorly, the degree of retroversion, and how far the uterus is fixed by cellular effusion, or involved in a retro-hæmatocele and its freedom of movement limited.

Other steps.—In a large proportion of cases the examination just detailed, in part or whole, will enable us to arrive at a conclusion as to the nature of a case. It may, however, happen that doubt still remains. There is some discharge from the uterus, and we have to satisfy ourselves as to its source and nature. On examination with the finger, the feeling of the os uteri and cervix prompts us to use the speculum. An abdominal tumour exists, regarding the exact nature of which, or its contents, we are not perfectly satisfied. There is a quantity of abdominal fat or tympanitic distension of the abdomen, or the difficulty has been great of making a satisfactory examination of the patient through nervousness, or sensitiveness and tenderness of the vagina.

Speculum.—In the first instance, we have to use the speculum to examine the os uteri and see any discharge that may be issuing from it; also it may be requisite to see with it the vaginal walls, if they are stripped of epithelium, or granular and secreting a quantity of vaginal mucus. A beginner may have some difficulty in passing the sound in the usual manner into the uterus. By placing the patient in the semi-prone position and using Sims's speculum, or on her back and inserting a tubular one, he can bring the os uteri into view; and then, if the uterus is in its normal position or anteverted, by dipping the sound well down he can, unless there be some obstruction, pass it on into the cavity.

Tents.—Secondly, a tent or uterine dilator may have to be

employed, if we desire to explore the uterine canal in cases of suspicious and prolonged hæmorrhage, where we suspect intra-uterine or placental polypi, or where there is septic discharge the consequence of any intra-uterine decomposition.

Aspiration.—And lastly, we may draw off a small quantity of fluid from a doubtful abdominal swelling, to determine its nature by chemical or microscopical tests; this may be done with the ordinary hypodermic syringe or aspirating needle. The aspirator is specially useful for diagnosis in doubtful pelvic and uterine enlargements, such as retro-hæmatocele, cystic tumours in Douglas's space, pelvic cellulitis, and retained menses (Fig. 32).*

Anæsthesia.—It is in those cases in which difficulties arise, either from the quantity of fat in the abdominal cavity, or gaseous distension in the bowel; where there is great pain and sensitiveness on the least attempt at examination; and where we have a patient debilitated or weakened by previous prolonged suffering, that an anæsthetic is specially called for. In children and very young girls an anæsthetic is often essential in order to make a thorough examination. Here cocaine may be used, but I prefer, for complete examination, when any anæsthetic is required, either ether or chloroform.

Rectal Exploration.—Simon's Method.—This plan of exploration of the abdominal viscera is seldom practised in this country. In the instance of a mesenteric mass causing partial ascites and abdominal enlargement, I was recently assisted in diagnosis by rectal palpation of the pelvic viscera. The woman is fully anæsthetized. She is placed in the lithotomy position, her thighs are well drawn up to the abdomen; the sphincter ani is then thoroughly dilated by the fingers, or better, by the thumbs; gradually the hand

* *Examination of Abdominal Tumours.*—I may here draw attention to the methods of exploration adopted by Professors Naunyn and Ewald, the former injecting and filling the colon with water by the syphon plan, the latter inflating the intestines with air, so as to make the situation and relation of tumours to or in the abdominal viscera and intestines clear.

well oiled, in the form of a cone, is most cautiously introduced in a rotatory fashion ; when the hand has passed into the bowel, the fingers can be separated a little so as to explore the pelvic organs. A few fingers may be passed on into the sigmoid flexure of the colon. My hand measures at its greatest circumference eight inches ; this I have introduced without lacerating the anus.* It is hardly necessary to point out how cautious must be the manner in which this procedure is conducted, and how seldom it is necessary considering the other means of diagnosis at our disposal.

Discharges.—In inflammatory states of the female genito-urinary organs the nature and character of the discharge found, on vaginal examination, coming from the uterus, or in the vagina, and spontaneously appearing at the vulva, is of considerable moment in the diagnosis.

The following table may assist the student :

DISCHARGES.

CHARACTER.	SOURCE.	APPEARANCE AND PROPERTIES.
Watery (hy-drorrhæal), and mixed.	Uterus—accompanying and following pregnancy ; associated with malignant disease, hydatids.—Vagina, vesico-vaginal fistulæ, rupture of ovarian cyst. Discharge frequently physiological, both from uterus and vagina ; the quantity of water the vagina can secrete is shown in the profuse discharge after a glycerine plug is worn in it.	At times colourless, or mixed with blood variously coloured, with cells of different kinds, or containing shreds of decomposing débris, or hydatids, or urine.

* This is not the rule ; even with the greatest care and a small hand some sphincter fibres will be ruptured. In some patients it is impossible to introduce the hand without serious injury to the sphincters and bowel. In ordinary dilatation of the sphincters for obstinate costiveness it is not necessary to introduce the whole hand. Always in these dilating operations we must proceed slowly and with great care.

DISCHARGES—*continued.*

CHARACTER.	SOURCE.	APPEARANCE AND PROPERTIES.
Mucous and epithelial, often containing epithelial debris, oil globules. Frequently only physiological exaggeration of the normal secretion, as in pregnancy, or associated with menstruation.	Fallopian tubes. Cavity of fundus uteri. Canal of cervix uteri.	Whitish, alkaline, columnar epithelium ; at times viscid, like unboiled white of egg ; when aggravated, fills the cervix and os uteri as a tenacious plug most difficult to remove, and is quite characteristic of endometritis. It may be the cause of sterility. Where the secretion is simply increased and attends corporeal leucorrhœa, it is known as the 'whites,' and is as a rule a proof that the general health is not good.
	External surface of cervix and the lips of the os and fundus of the vagina. Seen occasionally in excess during pregnancy.	Acid reaction ; varies in consistence—generally thick, creamy, white or yellowish - white, adhering often closely to the os and cervix

DISCHARGES—*continued*.

CHARACTER.	SOURCE.	APPEARANCE AND PROPERTIES.
	Some portion of vagina.	uteri and almost membranous in character; squamous epithelial cells, oil-globules. Acid mucus; character depends on the nature of inflammation; contains at times parasites and fungi— <i>Trichomonas vaginalis</i> ; <i>Leptothryx buccalis</i> .
Sebaceous, readily becoming purulent.	Vulva, labia, vulvo-vaginal glands, sebaceous glands.	Acid, fatty mucus, oily particles, epithelial cells.
Pus.	Purulent discharges may come from the Fallopian tubes, the result of salpingitis; from any part of the uterus, mingled with mucus; from the vagina and vulva. Pus may find its way into the uterus through fistulous openings, and into the vagina either by bursting of a suppurating cyst which has formed adhesions, or the escape of pus from a pelvic abscess	The appearance of the purulent secretion will in great measure depend on its source and the form of inflammation that has produced it: it may be profuse and thick, scanty and thin, very foetid or almost odourless, tinged with blood or rusty-looking,

DISCHARGES—*continued.*

CHARACTER.	SOURCE.	APPEARANCE AND PROPERTIES.
	the consequence of parametritis or a pelvic hæmatocele.	or of a dirty greenish colour. The discharge of vaginitis is, as a rule, profuse, pouring out in quantity, and is, especially if it be gonorrhœal, thick and yellow and persistent. It is mingled with epithelium.
Hæmorrhagic (excluding the hæmorrhages of pregnancy).	Blood may pour from any portion of the generative tract. We have three principal heads under which we may classify the occurrence of all hæmorrhage:— 1. Menstrual or altered menstrual flow. 2. Disease occurring in any part, as in salpingitis, metritis, endo-metritis, catarrhal cervicitis, subinvolution, uterine fibroid, polypus of any kind, granulations, vascular tumours, urethral caruncle. 3. Traumatic-injuries—operations. Vagina.—Same constitutional causes as	The blood at times is mixed with menstrual discharge or is merely altered menstrual flow, excessive in quantity (menorrhagia); the blood is then mixed with the débris of uterine tissue, epithelial cells, fatty and oil particles, mucus corpuscles, or, if there be ulceration, pus, and the products of inflammation.

DISCHARGES—*continued*.

CHARACTER.	SOURCE.	APPEARANCE AND PROPERTIES.
Hæmorrhagic.	<p>produce hæmorrhage from the vulva; granulations; abrasions; ulceration; varicose states; thrombus; traumatic causes; malignant disease.</p> <p>Rectum.—Hæmorrhoids; congestion of the rectal mucous membrane; fissure; ulcer; malignant disease; traumatic causes. Bleeding from the rectum may accompany hæmorrhagic discharge from the vulva and vagina.</p> <p>Vulva; in the exanthemata — (variola, typhoid and typhus fevers, measles); spinal meningitis; malignant ulceration; gangrene; noma; thrombus, varicose conditions; various blood states, as in leucocythæmia and scurvy; in the hæmorrhagic diathesis; wounds, operations, coitus; from vascular excrescences, and tumours.</p>	<p>May be arterial or venous, dependent upon its cause, whether there is active or passive congestion, due to direct rupture of vessels from ulceration and slough, or their injury by laceration, or wounds of any kind. In the various blood conditions and exanthemata, the blood poured out is generally dark and does not readily coagulate, rendering the hæmorrhage difficult of suppression.</p>
1. Those hæmorrhages	Uterus.—1. Simple menorrhagia — physio-	

DISCHARGES—*continued*.

CHARACTER.	SOURCE.	APPEARANCE AND PROPERTIES.
connected with menstruation and often associated with irregularity of the menstrual periods.	logical excess attendant upon ovulation; in plethoric states from excess of coitus; excessive menstruation at the 'change of life'—during the menopause; from suppressed skin secretion—the result of cold taken previous to or during menstruation.	
2. Hæmorrhage due to disease elsewhere.	2. Uterine hæmorrhage dependent upon hepatic, cardiac and renal affections; in phthisical states.	
3. Hæmorrhage due to abnormal uterine states, and morbid changes in the uterine tissues.	3. Uterine hæmorrhage associated with uterine hyperplasia, subinvolution, hypertrophy; versions and flexions, simple congestion, of cervix or body, stenosis, metritis, endometritis, fibroid enlargements, polypi, granular states of the endo-metrium, fissure of the os uteri and cervix, thrombus, malignant disease, extra-uterine fœtation, syphilitic disease, wounds.	

DISCHARGES—*continued*.

CHARACTER.	SOURCE.	APPEARANCE AND PROPERTIES.
<p>Air (physometra).</p> <p>The air is expelled by the muscular action of the vaginal wall.</p>	<p>Vagina and uterus. In the knee and elbow position air enters the vagina more or less readily when the vaginal walls separate. Also in the semi-prone position. Air may accumulate when a pessary is worn; if there be a fistulous communication with the bowel; or in prolapsus uteri.</p>	

The Microscope.—We bring the microscope to our assistance in the examination of suspicious discharges; in determining the nature of the cells contained in cysts—ovarian, hydatid, or malignant. In those cases of disease of the fundus or cervix in which, as in scirrhus, we may be uncertain of the nature of the growth, we may remove a little with Simon's scoop, or a curette, for microscopical examination.

The Ophthalmoscope in Diagnosis.—Did space permit, I might enter more fully than I am now enabled to do into the subject of ophthalmoscopic examination, in the diagnosis of uterine affections, and other diseased states which either complicate or originate the retinal disorder. It is not too much to say, that every educated physician and surgeon should at least know sufficient of the ophthalmoscope to be able to diagnose an albuminuric retinitis, a hæmorrhagic infarction due to congestion, a choked papilla, the retinitis attendant upon diabetes, the striæ and exudation of syphilis, the disseminated choroiditis of the same



Central Choroido retinitis, after labour.

Drawing [by Mr Burgess] showing appearances in the left eye in retinitis following on labour & severe post partum hæmorrhage. The patient, aged 30, was seen by me six weeks after labour. She could then count fingers at 5 feet. There was partial atrophy of the papilla & the region of the macula was studded over with white spots as shewn in this drawing. In one or two places there was evidence of a hæmorrhagic infarction. The appearances are allied to Mr Nettleship's retinitis "pallida". They are quite distinct from the uræmic patches.

disease, the retinitis of pernicious anæmia, or the leukæmic retina of anæmia and leukæmia. This practical acquaintance with the use of the ophthalmoscope is of still greater value in the diagnosis of diseased conditions both during and after pregnancy. I may quote from a review, written by me in 1879, of the admirable work on 'Ocular Therapeutics,' by Dr. de Wecker (translated by Dr. Lytton Forbes).

Nothing could be more convincing than the cases related by Dr. de Wecker, in referring to retinal hæmorrhages. It is well known how frequently such extravasations are due to secondary heart mischief, which has its source in vascular changes due to morbid states of the blood—as, for instance, in Bright's disease. Most important are such ocular disturbances in pregnancy. This is obvious when we remember the effect produced on the blood by pregnancy, and the relative importance which it has to the safety of the patient—both as an indication of head complications and other hæmorrhagic discharges, either before or during labour.

Dr. de Wecker cites the following case :

'I was requested some five years ago to examine a young American lady, twenty years of age, who was in her seventh month of pregnancy, and who complained that her sight had been somewhat dim during the last few days. Her husband begged of me to examine her that very evening, although to do this I had to disturb a large dinner-party, which neither the condition of her sight nor health prevented her taking part in. I found that there was a very slight haziness of the retina in the neighbourhood of the papilla in both eyes, and deferred further examination till the next day. At ten o'clock the following morning the ophthalmoscope showed on the left, near the papilla, a small extravasation, which certainly could not have escaped my investigation of the previous evening. Meeting a colleague, in consultation, I informed him of the fresh hæmorrhage in the left eye and the increased haziness of the papilla, and

begged him to allow premature labour to be brought on. I felt convinced that it would not be long before serious brain symptoms would declare themselves, and that in any case this primipara would not arrive at her full time without some accident. One of the most celebrated accoucheurs in Paris was called in in further consultation, but I was unable to convince him of the urgency of this danger. During the night which followed this consultation—that is to say, four days after the first ophthalmic examination—the patient was seized with convulsions, following each other in rapid succession. In all haste Dr. Campbell was sent for, but he did not feel justified in forcibly delivering a patient who lay unconscious and in a moribund condition. Death occurred the following night.’

He cites a second case, in which a renal cyst passed undetected where retinal apoplexy was present.

As regards the percentage of retinal complications in Bright’s disease: ‘According to the most reliable statistics,’ Dr. de Wecker says, ‘retinitis occurs in from 9 to 20 per cent.; less accurate give, out of 150 cases of kidney disease, 50 of retinal.’

A short time since, a patient came a long distance to consult me for failing vision in both eyes. On examination well-marked nephritic patches were seen on the retina in one eye, and the characteristic scattered dots in the other. On examining her urine I found its sp. gr. 1,008, no albumen present, but there were renal casts and epithelium; the other symptoms pointed to the presence of granular kidney, which up to this had been unsuspected. Not in this case only has it been my lot to be the first to discover—by the ophthalmoscope—the danger that threatened the patient, and I feel assured that were the use and knowledge of this instrument generally insisted on, many diseases would be more frequently recognised in their earlier stages, and a timely warning given both to physician and patient. In

noticing Dr. de Wecker's allusion to the contra-indication of hot baths in retinal lesions dependent upon nephritis, I am reminded of two cases of sudden death occurring within my own experience which were caused in this manner. The last instance was that of a lady who noticed her vision affected for a few days, and called on me to have an examination made. I happened to be absent. She left word that she would come the next day. That night she took a hot bath, which she had frequently taken before, was attacked while in the bath, and died in a few hours of apoplexy. An ophthalmoscopic examination that day might have saved her life. But I could multiply instances in which both the detection and diagnosis of existing disease have been due to the ophthalmoscope. 'The retinitis of malignant anæmia is so constant,' says Dr. de Wecker, 'that it may be looked on as pathognomonic.'

Not long since I had a case of well-marked diabetic retinitis of both eyes under my care ; in each eye there was a hæmorrhagic effusion ; and in a case of diabetic pruritus now attending me, the state of the retina led to a urinary examination and confirmed the suspicion of diabetes. I have at present a patient who consulted me for loss of vision in one eye, and impairment in the other, due to thrombosis of a retinal vessel in the region of either macula, occurring at the menopause.

The experience gathered from the treatment of over 25,000 eye patients impels me to urge on the practitioner and student the great value in diagnosis of this simple instrument.

I can only repeat, that I have known persons whose symptoms were ascribed to amenorrhœa, hysteria, anæmia, a disorder of pregnancy, a dyspeptic state or gastric disturbance, or liver derangement, in which an ophthalmoscopic examination and the discovery of optic neuritis, choked disc, detached retina, retinal apoplexy, Bright's degeneration, syphilitic effusion, would have afforded a clue to a correct diagnosis.

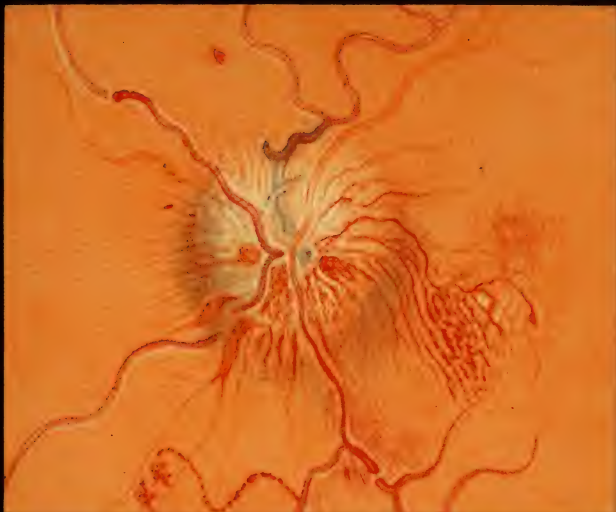
The following case, already reported by me, will serve to illustrate these remarks :

Miss C——, aged 34, consulted me on July 3rd for sudden loss of vision in the right eye. Menstrual periods had not been very regular for some time, and the loss of sight occurred just at the approach of a catamenial epoch. The menstrual irregularity was attended by general failure in health, but she had not given up her employment. She first noticed the sight affected on June 29th. She could then barely discern an object. On examination (under cocaine) of the fundus, the optic disc presented the appearances shown in Fig. 1, Plate I., which was most faithfully drawn by Mr. Burgess on July 4th and 5th. From this latter date the eye was placed under the influence of eserine, 1 per cent. As it caused slight pain, I then substituted pilocarpine, 1 per cent. Also she took internally \mathfrak{z} i. doses of the liquid extract of ergot. On July 18th she read $\frac{20}{70}$ (Snellen), and on July 23rd was able to read $\frac{20}{50}$. On this day I again examined the fundus under cocaine. The appearance of the papilla (July 24th) is shown in Fig. 2. There was no assignable cause, save the menstrual association, for the thrombosis. There was no albuminuria. There was no pain in the eye or head. The relief afforded by the treatment has been permanent. This may be explained by the freedom of the macula from effusion.

Exploratory Incision.—Having exhausted all our means of diagnosis, and doubt still remaining in a case of abdominal tumour, where the question of operation arises, there remains still abdominal incision and exploration. This is not to be resorted to save as a *dernier ressort*, as in itself the step is not devoid of danger. Yet the brilliant results recorded by Mr. Lawson Tait, which cannot be gainsaid, prove how abdominal section may be brought to perfection by a careful, discriminating and bold operator. (See Chapter on Uterine Fibroids.) A small incision is made through the skin

* See Chapter on Urethral Affections for Urethral Exploration and the Speculum of Mr. Reeves.

Fig. I.



Appearance
of Papilla
July 4th & 5th

Fig. II.



Appearance
July 23rd

over the linea alba ; is carried on carefully through the cellular tissue, fat, tendinous structures, and subperitoneal tissue. All bleeding is carefully arrested by torsion or ligature. The peritoneum is now examined, and the shining wall of an ovarian cyst may be seen lying underneath ; the peritoneum is carefully raised by a tenaculum, and a small opening made which is enlarged on a director for the extent of an inch and a half to two inches. We are thus, with two fingers, enabled to examine the adjacent cyst-wall and search for adhesions, or explore the abdominal cavity.

Rectal Specula.—When the rectum has to be examined for fistulæ, fissure, ulcers, or hæmorrhoids, we may require a specu-

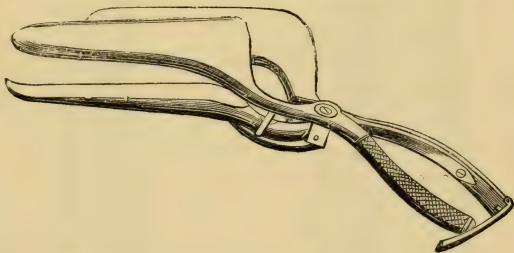


FIG. 43.—Lane's Rectal Speculum.

lum (Fig. 45). The patient is placed on the couch, the nates are drawn well to the edge, and the thighs flexed. The specula I prefer are those of Mr. Gowland (Fig. 45), or the three-bladed one of Mr. Lane (Fig. 43). Whichever is used we require a good light, and to introduce the speculum slowly and gently.* The educated finger of the surgeon gives the most reliable information.

Occasionally we may wish (as in removal of polypi and for complete uterine exploration when there is hæmorrhage) to dilate the uterus with Barnes's hydrostatic dilators. Fig. 47 shows a useful combination of Higginson's syringe

* See Examination of the Rectum.

fitted with one of these bags. When the cervix is sufficiently dilated by a tent, or by forcible dilatation, the bag can be introduced into the uterus by means of the uterine sound or finger, and then distended gradually with water.

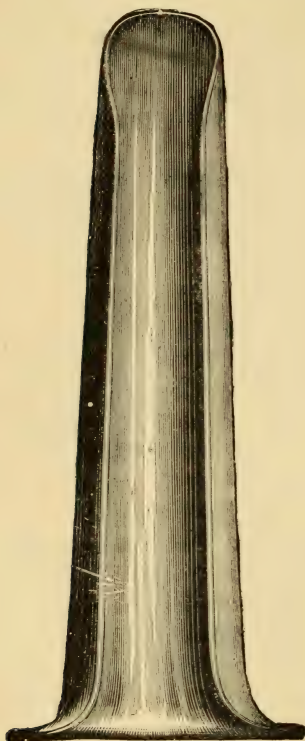


FIG. 44.—Rectal Speculum.



FIG. 45.—Rectal Speculum
(Gowland's).

To explore the urethra, such an instrument as Bryant's (Fig. 46) conical dilator may be used, or the urethral speculum (Reeves).* I prefer my uterine bougies as

* See Chapter on Urethral Affections.



FIG. 46.—Bryant's Urethral Speculum.

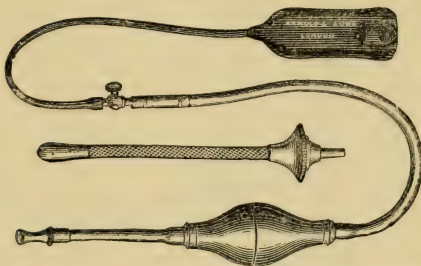


FIG. 47.—Arnold's combination of Barnes' Dilator and Higginson's Syringe.



FIG. 48.—Arnold's improved continuous Enema Syringe.

dilators, assisted, after sufficient dilatation, by the finger. If nothing else be to hand, a small glove-stretcher answers admirably.* It is necessary in making a careful diagnosis to

* See Chapter on Urethral Affections for Urethral Exploration and Mr. Reeves' Speculum.

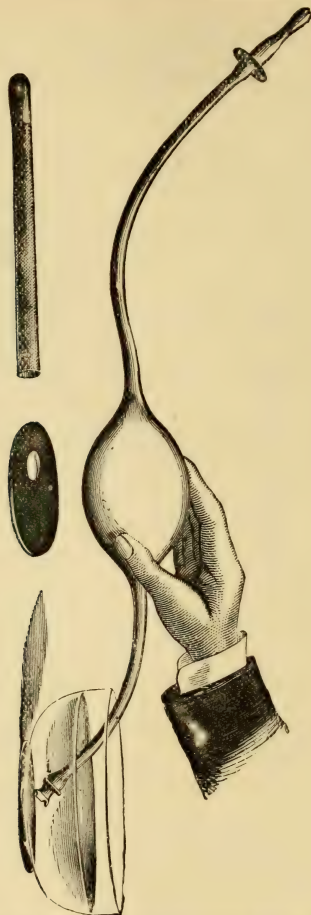


FIG. 49.—Maw's continuous Syringe.

first empty the bladder and rectum. A continuous acting syringe is required for washing out the vagina.* This modification of Higginson's syringe of Messrs. Maw will be found

* The 'Alpha' vaginal syringe (Stearns, New York) is an admirable instrument.

very useful, or the pump-syringe of Arnold, which answers also for an enema. For use with the speculum, after douching the vagina, or for holding piece of cotton-wool, etc., the small vulcanite slice made by the same firm is convenient. Messrs. Maw have made me a convenient speculum slice* that can be fixed on with a spring to the speculum, and which will be found most useful. (Fig. 53.)



FIG. 50.—Bozeman's Retractor.

In operations on the vagina—Bozeman's and Simons' retractors are most convenient and useful instruments—the fenestrated retractors of Sims are sometimes to be preferred.

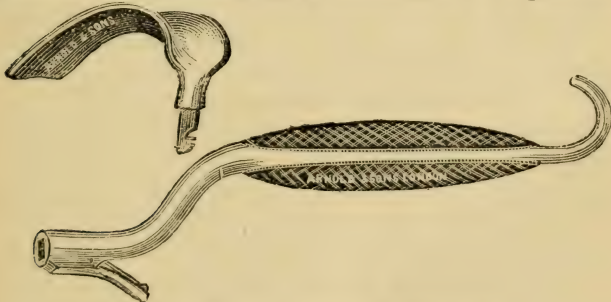


FIG. 51.—Simon's Vaginal Retractors.

* This irrigation speculum slice was first made at my suggestion in the year 1884. I find that the idea is credited, in the 'Annual of Universal Medical Sciences' for 1889, to Professor Pozzi.

CHAPTER IV.

SOME MINOR GYNECOLOGICAL OPERATIONS.

APPLYING NITRIC ACID TO THE CAVITY OF THE UTERUS.— This is a simple step that any intelligent practitioner should be able to carry out, in those chronic cases of endometritis and subinvolution which must occasionally come under his care.

Any operative measure such as this should be avoided immediately before or after a period. It is well also in all operations on the uterus or ovaries to secure such mental rest and quiet as we can, and to subdue any morbid excitement of the nervous system generally. For this purpose, a dose of from fifteen to twenty grains of bromide of ammonia or bromide of potassium may be given for some nights before operating. The secretions should be seen to, and the rectum if necessary emptied by an enema on the morning of any operative interference.

The uterine canal has been previously dilated. The patient is in bed. The instruments we require are—a duck-bill speculum or short Barnes's bivalve (better the former) a few uterine wool-holders, an Atthill's trocar and cannula, a uterine tractor and absorbent cotton-wool. We have also the fuming nitric acid and some vaseline and glycerine at hand. It is right to have an assistant or nurse and this is indispensable when we use the duck-bill speculum.

The woman is placed in the semi-prone or lithotomy position, and brought well to the edge of the couch opposite a good light. Sims's speculum is introduced, and the uterus is steadied

and drawn well into view and under control. A thin layer of cotton-wool has previously been rolled tightly round one of the platinum probes, to the extent of about two inches; the cannula is introduced by the aid of the trocar into the uterine cavity, and the trocar is then withdrawn. The cannula is easily retained in position with a forceps. The probe is now dipped lightly in the acid, and it is a good plan to roll it on the side of the slice so as to press out any superfluous acid. It is then carried through the cannula to the fundus, and withdrawn with the cannula so that the latter may protect the soft parts. The advantages of this convenient appliance of Dr. Lombe Atthill are manifest. The second of the uterine probes is ready charged with some vaseline, which it is well to pass after the acid has been applied to the fundus uteri. It may tend to prevent



FIG. 52.—Atthill's Trocar and Cannula.

adhesions. I place in the vagina either some dry absorbent wool or a glycerine tampon. Before passing the probe armed with the acid into the uterus it is essential to completely arrest any bleeding that may have occurred. The same night the patient may take twenty grains of bromide of potassium or bromide of ammonium. She should remain in bed and have the vagina dressed each day; any discharge must be carefully wiped away, and a fresh tampon placed in the vagina.

Depletion of the Cervix Uteri.—For this purpose the cervix uteri is exposed with a good-sized tubular speculum, the patient lying on her back. A Hall's lancet (a set of different sizes in a small case may be had) is taken, and some punctures, according to the quantity of blood we require to take, are made in the cervix and the neighbourhood of the os uteri. A speculum slice is slipped under

the lip of the speculum, and the blood is permitted to run into it. I believe rather in occasional depletion than in the abstraction of a large quantity of blood at one time.* When we judge that sufficient has been drawn, it is easy

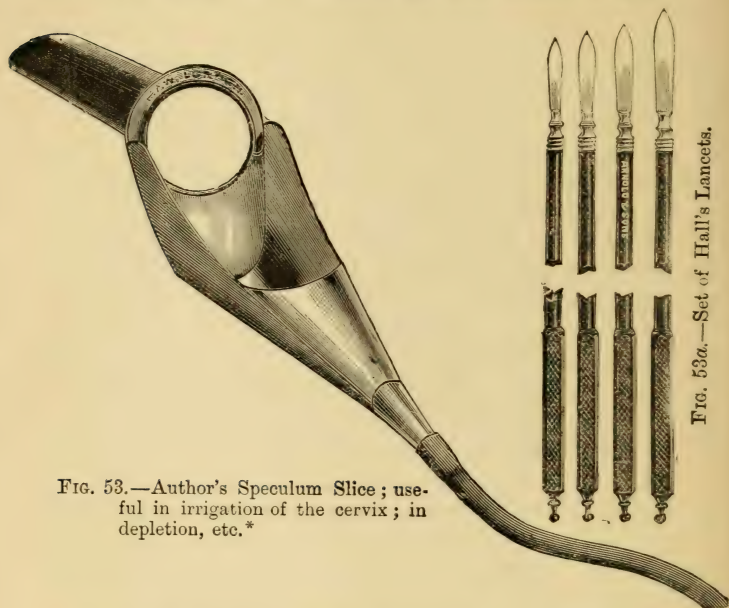


FIG. 53.—Author's Speculum Slice ; useful in irrigation of the cervix ; in depletion, etc.*

FIG. 53a.—Set of Hall's Lancets.

to stop any further loss by a plug of dry wool pressed up through the speculum against the cervix uteri. A few such tampons will arrest the bleeding. I make it a rule of practice to apply a small dry plug of salicylic acid

* It is better not to make these punctures too freely. I am aware of a case in which, having recommended depletion of the cervix, the incision was carried so deeply that the patient bled profusely before any assistance could be had, and dangerous syncope followed. In another case where the cervix was scarified at the house of the medical man—no precaution being subsequently taken—the patient, after her return home, a little distance, had smart bleeding, which naturally caused alarm to her and her friends.

wool, or the same wool saturated with glycerine, after depletion. It is well to deplete, especially in cases of congestion and dysmenorrhœa, shortly before the advent of a period.

Aspiration.—When an aspirator is used for therapeutical purposes I prefer the larger needles, as shown in Fig. 54.

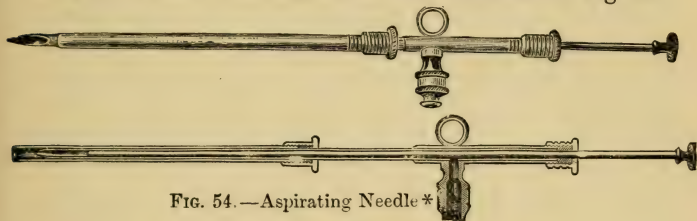


FIG. 54.—Aspirating Needle *

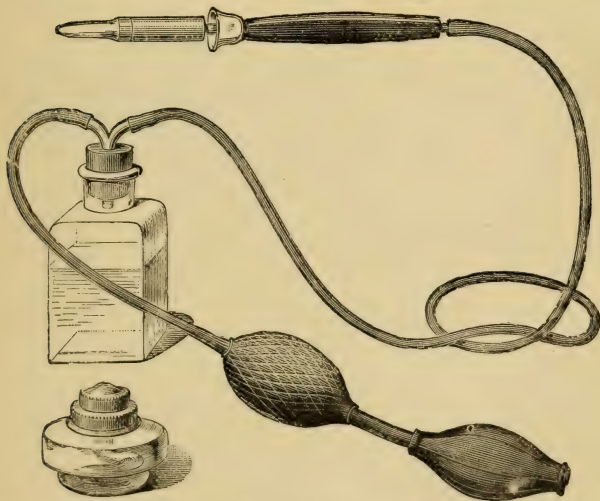


FIG. 55.—Paquelin's Thermo-Cautery.

The aspirator is shown at page 57.† Such an instrument I have been using for years, and have found it most convenient. The needle-points (Fig. 54) are protected after insertion by a cannula, the piston also completely prevents the admission of air.

* Messrs. Matthews.

† I elsewhere figure the small aspirator of Bartlet (chapter on 'Pelvic Hæmatocele'), and the needle aspirator (page 56) of Prothero Smith.

The Actual Caution.—When for any purpose we desire to employ the actual cautery, there is no appliance to surpass for general use the benzoline cautery of Paquelin. It is available also for cutting purposes, growths, small tumours, vascular excrescences, malignant disease of the uterus, perforation of a fibroid tumour of the uterus, hæmorrhoids. For very small tumours and for operation on the urethra, such an instrument as that used for small nasal and throat growths answers admirably. The fine platinum points can be had of any shape. If we use a modified Trouve's battery (Krohne and Sesemann), by simply raising the cover the needle or knife is brought to the desired heat.*

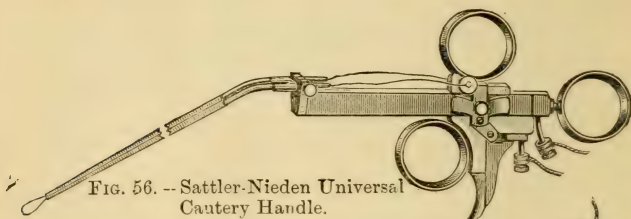


FIG. 56. -- Sattler-Nieden Universal Cautery Handle.

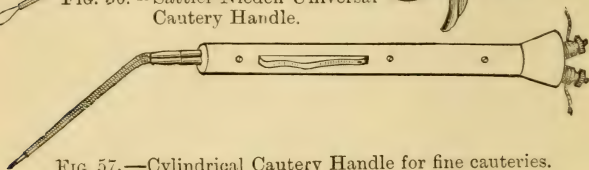


FIG. 57. —Cylindrical Cautery Handle for fine cauteries.

Incision of the Cervix Uteri.—Simple incision of the lower part of the cervix has frequently to be resorted to, and is a step which must constantly fall to the lot of every practitioner. It is of advantage in cases of endocervicitis, when we have a small os externum in which we require room for intra-uterine medication; also in those cases of congestive and mechanical dysmenorrhœa associated with conical cervix and pin-hole orifice. The incision is best performed with a Kuchenmeister's scissors (Fig. 58), the intra-uterine blade of which is introduced to the desired

* See cautery battery of Coxeter, p. 149.

extent into the canal of the cervix, and, either bilaterally or through the posterior wall, the cervix is divided. Every practitioner must remember that even with this simple step it is necessary to adopt every precaution. It is wrong to take any risk. Therefore, before performing it the patient should be told that she must remain quiet, stay in bed for a day or so after the slight operation, and run no risk from cold or coitus.*

The patient should have a nightly dose of bromide of ammonia, commencing about five days after a period, and continued for a few nights. The rectum should be cleared before operation. The operator ought to have no contact



FIG. 58.—Kuchenzmeister's Scissors.

with any case of infectious disease for some days beforehand. The position of Sims is chosen; the uterus is drawn well into view and held by a hook. The operator sees thoroughly how far he is cutting, and the extent of introduction of the blade. After division, bleeding is carefully arrested. I think it well, if possible, to avoid the use of any styptic, such as perchloride of iron. The bleeding is generally controlled by a few dry plugs, pushed well against the wound, if necessary, through a tubular speculum. I have found the styptic wool of Braun of use in ex-

* For further particulars of this operation and division of the internal os, see chapter on 'Uterine Displacements.'

ceptual cases. A little pad of this wool is carried up and pressed into the incision, and allowed to remain for a time. After the bleeding has ceased, a plug of glycerine with some weak Condyl's solution is left in the vagina. The vagina must be dressed once daily, and the wound kept open with a uterine probe, and a glass stem worn in the uterus.

DIVISION OF THE CERVIX UTERI AND INTERNAL OS.—In cases of sterility where dilatation has failed, or in severe endometritis with dysmenorrhœa, or in spasmodic dysmenorrhœa, division of the cervix uteri and internal os is indicated: this is a much more serious, as it is a more efficacious, step than division of the cervix alone. We are more likely to have hæmorrhage from the uterine vessels; we are closer to the peritoneum; there is a greater risk of metritis; and there is more immediate shock to the woman. Every precaution taken in the simpler operation is adopted in this. The instrument I prefer is a Sims' knife (Fig. 59).

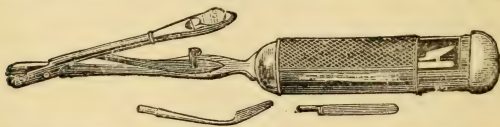


FIG. 59.—Marion Sims' Knife for division of the Cervix.

The blunt-pointed, straight, and curved blades are carried in the handle. They can be adjusted at any angle to the long axis of the handle. The preliminary steps are those taken for division of the cervix. The knife is passed through the cervix uteri and internal os. The incisions are carried laterally or posteriorly. The posterior incision, with the exsection, as suggested by Sims, of a small triangular portion of the neck of the uterus, has the great advantage that it places the axis of the patient's uterine canal in the most favourable position for conception. This is still more apparent if there be an ante flexion associated

with the sterility. Every precaution must be taken, after excising the cervix, against exertion, cold, coitus, or septic contagion. It is better to keep the canal open with the glass stem of Sims, or the intra-uterine soft stem of Greenhalgh.

Greenhalgh's, Simpson's, and More Madden's metrotome are shown. But I have the same objection to them as to all metrotomes constructed on similar principles, namely, that the action of the blade is not so directly under the control of the operator, nor the extent and direction of the incision made by it, as with such an instrument as the knife of Sims



FIG. 60.—Greenhalgh's Metrotome.

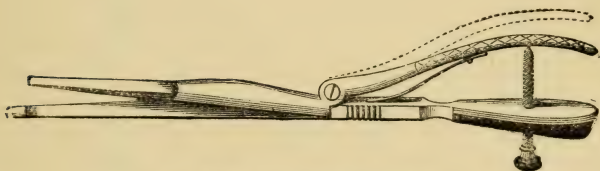


FIG. 60a.—Simpson's Metrotome.

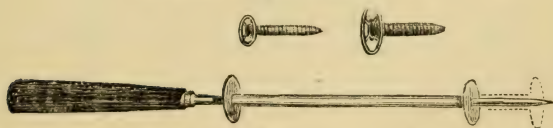


FIG. 60b.—Intra-uterine stem of Dr. Duke, which can be used after Sims' operation (Arnold and Sons). See page 152 for Greenhalgh's stems, etc.

PARACENTESIS ABDOMINIS.—This is an operative measure frequently demanded in cases of ovarian cyst:

- (a) Purposes of diagnosis (ambiguous cases);
- (b) Where the operation of ovariectomy is contra-indicated to prolong life;

- (c) As a palliative measure to gain time in certain cases, and afford temporary relief ;
- (d) In some cases where pregnancy complicates ovarian dropsy.

It is not a step to be undertaken lightly. It has to be remembered that simple tapping of an ovarian cyst has been frequently followed by death from shock, peritonitis, the escape of cyst contents, or of blood escaping into the peritoneal cavity, and septicæmia. Therefore it is well, in preparing to tap, that we should decide, beforehand, clearly with what object the step is taken. If our desire is to assist the diagnosis, then I prefer the aspirator and one of the larger needles (Fig. 55). The rod in the needle prevents the admission of air. Such a needle will possibly empty even a large cyst. If we have a doubt as to the nature of this fluid and its character, while, at the same time, we are anxious to tap the cyst, the trocar of Spencer Wells is an admirable instrument. The larger the bore of the trocar the safer it is in all such cases ; one of the most awkward accidents of paracentesis being the clogging of the tube with semi-solid cystic contents, and the escape of cystic fluid as a consequence into the peritoneal cavity. Having decided to tap, we prepare our patient by attention to the secretions, securing quiet, giving a dose of bromide of potassium on the previous night, and immediately before the operation, having the urine drawn off by an assistant. Save to allay nervousness, an anæsthetic is not necessary, and is better avoided. But some ether sprayed over the site of the small preliminary incision, or, as Dr. Goodell advises, the application of a lump of ice, the end of which has been dipped in a little salt, will completely deaden the sensibility. It is better, if possible, to select the linea alba. It is the exception when we are compelled to make the puncture elsewhere, through the accident of some solid matter

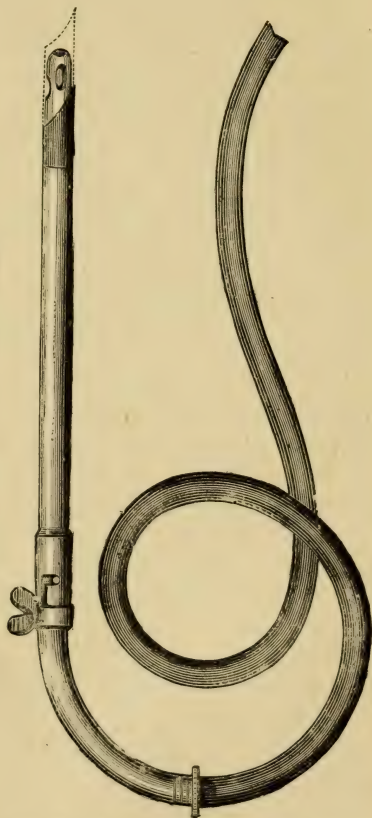
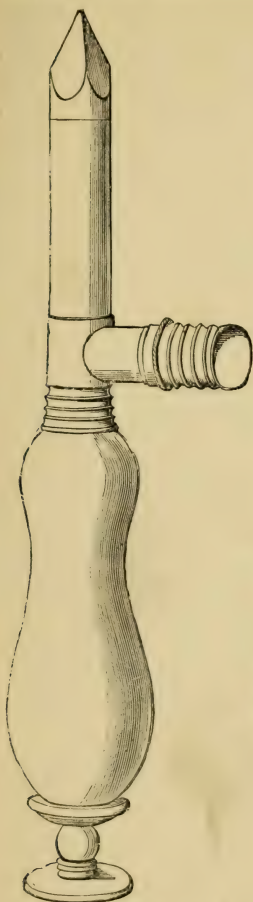


FIG. 61.—Wells' Trocar. FIG. 62.—Guarded Trocar of Sir Spencer Wells.

occupying the position of the median line. The abdomen may be first embraced in a roller, split at the sides. This is drawn tighter as the fluid escapes, and it serves to support

the abdominal wall during the emptying of the sac and the removal of the pressure from the great vessels. The woman is brought well to the edge of the bed, the abdomen projecting over it. A bucket or two is at hand to receive the contents of the cyst, with a little water in each, so that the end of the tube attached to the trocar may dip below the surface, and thus the admission of air be prevented. A small incision is now made in the abdominal integument, over the linea alba, midway between the pubes and umbilicus, and the trocar is plunged into the cyst. If it be a polycyst, the trocar may be made to pierce the other cysts without withdrawal. When the fluid has ceased running, extra caution must be exercised in preventing the admission of air, or any fluid likely to excite inflammation.

The wound is closed with a little dry antiseptic dressing. If the incision has been made too large, a silver-wire suture must be inserted; otherwise a dossil of lint and a few straps of adhesive plaister are sufficient. The prepared thymol pads will be found most convenient, to lay over the wound, after all such operations. The same care should be exercised to anticipate peritoneal inflammation after paracentesis as after the more formidable operations of abdominal section.

Vaginal Paracentesis.—In a limited number of cases it may be necessary to remove fluid from a cyst, ovarian or other, by the vagina. A small cyst may be localized in the pelvis occupying Douglas's space; in a multilocular cyst the solid part may be above, and the fluid cysts distend the lower portion of the tumour. For diagnostic purposes it is necessary to tap when we are uncertain of the nature of the tumour, whether cystic or otherwise. All the dangers of peritonitis and septicæmia are accentuated in vaginal tappings. It is better as a rule to use an aspirator. Otherwise a long

curved rectal trocar, or better, the small guarded ovarian trocar of Spencer Wells, with a tube attached, which can pass into some fluid in a vessel at the side of the bed, must be chosen. The patient is best placed in the lithotomy position. The rectum and bladder (as in all operative procedures on the pelvic viscera) are first emptied. A careful and final exploration of the pelvic organs is made. The most prominent part of the tumour is felt, where we find the distinctest sense of fluctuation, and the trocar is guided to this spot by the middle and index fingers of the left hand. The bulging portion is now pierced with the trocar, which is then withdrawn, and the fluid permitted to flow off by the cannula and tube. The less meddling after the withdrawal of the fluid the better. The vagina may be washed out at intervals with some disinfectant solution, and an antiseptic tampon worn. The greatest care is necessary for several days, the patient being kept on her back and the pulse and temperature closely watched. The patient should have her bladder regularly relieved by the catheter, and it is well to keep the bowels quiet by opiates for a few days.

*Puncturing a Pelvic Hæmatocele.** All that has been said of paracentesis 'per vaginam' applies to the relief of a pelvic hæmatocele by aspiration or tapping. But it is well to insist on the comparative danger of this step. Two facts must always be before the mind of the practitioner in deciding to puncture a peritoneal hæmatocele. First, we open into the peritoneal cavity, and in all forms of the accident we admit air into a fluid prone to decomposition, and hence we expose our patient to the increased risks of septicæmia. Secondly, it has to be seriously considered if results prove that we increase the chances of recovery. My individual experience of cases of pelvic hæmatocele would incline me rather to say, 'Let it alone, and treat the case.' (See 'Pelvic Hæmatocele.') But if we do decide to

* See chapters on 'Pelvic Hæmatocele' and 'Electro-Therapeutics.'

puncture or remove clots, either from the quantity of fluid in the tumour or the symptoms of septicæmia being imminent, we must determine our site of puncture according to the character of the swelling and the situation of its most prominent surface. The ordinary trocar for paracentesis of the over-distended bladder is selected, if the tumour be felt most prominent through the rectum. But, as a general rule, the posterior cul-de-sac of the vagina will be found the most suitable and most convenient place to puncture. The aspirator is the best instrument to use. If we are deceived in the sense of fluctuation, and find either a smaller quantity of fluid than we anticipated, or only softened clots—or that no fluid comes with the aspirator—the question immediately arises, Should we lay open the mass and remove the clots? The decision must depend on the urgency of the local or general symptoms—great pelvic distress in the bladder and rectum on the one hand; symptoms of septicæmia on the other. It is impossible to lay down dogmatic rules for guidance in such cases. Each individual case has its special peculiarities and bearings. Influenced by our surgical instincts and experiences, we must do all that is possible to save our patient, avoiding unjustifiable or rash risk in the one direction, and equally culpable and timid trifling with life in the other. Should we resolve to open the mass, a long bistoury may be taken (if we have not Paquelin's galvanic knife to hand), and a little lint is wrapped round the blade, as a sheath, to within about one inch of the point. Such a knife as that figured, and which is used



FIG. 63.—Bistoury.

for puncturing the larynx in œdema of that organ, will be found most suitable. The incision is carried through the

posterior vaginal roof, and is of sufficient extent to admit of one or two fingers to examine for clots and remove these if necessary. It is needless to say that this step must be conducted with the strictest antiseptic precautions. I think it well to let the carbolic or bichloride of mercury spray play about the bed and person of the patient before operating, and to wash out the vagina with a carbolic or bichloride of mercury solution; and subsequently to the evacuation of the contents of the tumour, to use with a syringe an antiseptic wash, through a piece of tubing attached to the nozzle of an ordinary syringe or the cannula of the aspirator. Hydro-naphthol solution (1 in 2000) is a most valuable antiseptic solution.

CHAPTER V

MINOR OPERATIONS (*continued*).

INTRA-UTERINE MEDICATION.—In gynecological practice the treatment of uterine discharges by the topical application of agents to the uterine canal, both of cervix and body, is of everyday occurrence. In the commonly occurring troubles—subinvolution, endometritis—cervical and corporeal, granular conditions of the canal, after removal of polypi, those conditions consequent upon gonorrhœa—we have to apply caustics, astringents, and absorbents to the interior of the uterus. The following are the more important therapeutic agents employed :

Nitric acid,
Carbolic acid,
Chromic acid (in solution),
Iodoform* (in ointment) and iodol,
Iodine (as tincture or with glycerine),
Iodine and carbolic acid,
Nitrate of silver (solid and in solution),
Sulphate of zinc (solid and in solution),
Perchloride of iron (in solution),
Chloroacetic acid (in solution),
Chloride of zinc (in solution),
Mercury (in ointment),
Belladonna (in ointment),
Acetate of lead (in ointment),
Morphia (in ointment),
Hydrastis Canadensis,

* To disguise iodoform, vanilline, coumarine, and equal parts of fresh coffee may be used.

Tannin (as suppository),
Hazeline (liquid extract).*

Intra-uterine medication is thus carried into practice either through the application of solid substances, the introduction of ointments, or the application and injection of liquids. These are applied to the cervix alone, or to the cavity of the body of the uterus above the cervix. A few general remarks on intra-uterine medication may not be amiss.

While many women are most insusceptible to the effects of intra-uterine applications, others, on the contrary, are very easily affected by such, and are peculiarly prone to suffer from uterine colic, symptoms of collapse, metritis, or peritonitis after their use. Intra-uterine medication, then, is always to be undertaken cautiously. Before resorting to it, the woman must be placed in the best possible position to undergo this form of treatment. This caution is all the more necessary in those applications which are made above the *os internum*. Certain general precautions are applicable to all cases.

Reduce any general congestion of the womb by internal remedies, baths and depletion, before commencing intra-uterine treatment. Use, previously, vaginal injections; have the patient's bowels attended to by the administration of some saline purgatives; rest in bed is essential where a powerful agent is carried beyond the isthmus uteri. In all cases of narrow and contracted *os uteri*, it is well to enlarge it by lateral incision before we apply any substance internally; and if we have to attack the cavity of the body, dilatation of the isthmus uteri should be secured before we proceed to treatment. In all cases of intra-uterine medication, when any caustic or astringent has been used, I believe it to be a safe practice to insert a pledget of absorbent or salicylic acid wool and glycerine into the

* I have found the liquid extract of *hydrastis*, either alone or diluted, and combined with glycerine, carbolic acid, or tincture of iodine, an admirable application in cases of cervicitis and erosion of the cervix.

vagina. This is the more requisite, if the step be taken in the practitioner's house, and if the patient has to drive or walk any distance subsequently. No application should be made *immediately* before or after a menstrual period. The safest and most convenient means of applying any remedy to the canal of the uterus is by means of the uterine probe and cotton-wool. The probe can be curved to any shape, so as to pass readily into the uterus. It is well to have two probes by the surgeon; one is necessary to clean out the uterus. This is readily done by rolling a layer of cotton-wool round the end of the probe, and wiping out the uterus with it. At times a difficulty is experienced in removing the tenacious plug that fills the cervix in some cases of endometritis. By placing a little more wool on the probe, and rotating, we may detach this; but a small conical sponge, held in a miniature sponge-holder, will answer the purpose better than anything I know of.

When about to dress the uterus in the manner spoken of, it is well to have the patient in front of a good light on the obstetric couch, in one of the positions already described; perhaps the dorsal decubitus will be found generally the most convenient. I have already alluded to the mode of applying nitric acid to the fundus uteri. In all these cases where we have any difficulty in reaching the cavity of the fundus, it is far better to use the duck-bill speculum and resort to Sims's semi-prone position. One tampon of wool is ready at hand, and some half-dozen small pieces are prepared to wipe the vaginal roof and surface of the uterus. The cervical canal is cleaned out and dried, and the uterine probe, armed with the cotton-wool saturated with the solution, is carried the desired length into the uterus. When the probe is withdrawn, the vaginal tampon is introduced.

Of the substances named, the strengths of any solution

* Dr. Duke, of Dublin, has devised a useful little instrument for removal of this secretion (see Fig. 38a).

selected must depend on the character of the case and the effect we desire to produce. The safest rule for practitioners to follow is to select a medium strength of any medicament, and never to begin with the maximum of that recommended. On the whole, it is better to be below than above even the medium strength of some solutions. The subjoined are the solutions that, as a rule, will be found safe and serviceable :

1. Nitric acid (applied as directed), pure.
2. Carbolic acid and glycerine two parts to one, and equal parts. (Extract of Hydrastis, one part, may be added.)
3. Carbolic acid, glycerine, and tincture of iodine : equal parts, or combined with extract of hydrastis.
4. Carbolic acid and ext. hamamelis (liq.) : equal parts.
5. Chromic acid : gr. xx.—xxx. ad ʒi. ; or the same solution with equal parts of glycerine.
6. Iodine : gr. xxx.—ʒi., spt. rectif. ; or tincture, with equal parts of glycerine.
7. Nitrate of silver : gr. xx.—xxx. ad ʒi.
8. Perchloride of iron : gr. xx.—xxx. ad ʒi. (glycerine or water), with one part of No. 2 Solution.
9. Sulphate of zinc : gr. xxx. ad ʒi. ; or with one part of No. 2 Solution.
10. Chloride of zinc : gr. xxx. ad ʒi. ; or with one part of No. 2 Solution.

These solutions will be found to answer for most cases. It is a good plan in periodical dressings to vary the nature of the application. A good effect will often follow this change in the substance we apply.

Intra-uterine Injection.—Individually, I never use intra-uterine medicated injections into the cavity of the uterus. It may be prejudice and a dislike to run the unquestionable risks attendant upon their employment. I believe the less fluid we leave in the uterine cavity after

any topical application the better. This applies with double force to the undilated organ ; metritis, peritonitis, collapse, colic, cellulitis, and perimetritis are more likely to follow the injection of fluids. If they are used, it should be with such an instrument as the urethral injector of Sir Henry Thompson, and which I have for years successfully employed in gleet states of the male urethra. Such an intra-uterine medicator I have had made for me by Messrs. Maw (Fig. 69). It has a special uterine curve, and answers well for introducing fluids. It carries a sponge, moistened with the solution, which is carried down to the apertures in the curve of the instrument, and thus a small quantity can be squeezed through these into the urethral or uterine canal. Withdrawing the sponge slightly, we can permit the reflux of any fluid that may remain, before removing the instrument. Still the advantage we gain by this over the application with the uterine probe and saturated wool, I confess I am at a loss to see. If intra-uterine injections are used, we must be careful to—

- (1) Exclude the possibility of any flexion of the canal ;
- (2) To secure free exit for any fluid by previous dilatation of the canal ;
- (3) To inject (the patient being in bed), within a week *after* the menstrual period, and take every possible precaution to anticipate and prevent *subsequent* inflammation ;
- (4) To be careful of the admission of air ;
- (5) Never to use nitrate of silver solution ;
- (6) It is well to wash out the uterus first with a little warm water, to ascertain the uterine sensitiveness.

Tincture of iodine, diluted ; carbolic acid, with glycerine and water ; perchloride of iron, in water ; chromic acid,

in solution ; sulphate and chloride of zinc, in water—have all been used. The strengths should be weaker than those we employ of the same agents with the cotton-wool and probe.

A fairly safe injector to use is a small glass syringe which fits accurately to a hollow uterine sound with fine apertures at the point (Fig. 65). Whatever fluid is employed, at the most five to ten drops should only be injected at the time. I repeat that in practice I believe intra-uterine injection to be a needlessly venturesome plan of treating endometritis.

Ointments.—Any ointment of such strength as we may desire can be applied to the cavity of the uterus. Thus we may use most serviceably carbolic acid, chromic acid, nitrate of silver, iodoform, nitrate and iodide of mercury, belladonna, bismuth, tannic acid, morphia, acetate of lead. We may use the uterine probe, or such an appliance as the ointment-positor of Dr. Robert Barnes (Fig. 66). Vaseline, or vaseline and paraffine, or lanolated fat, are good bases for ointments.

Solid Substances.—These are best used in the shape of the fused sticks sold for the purpose ; as those of Dr. Braxton Hicks, which are made of sulphate of zinc.* Nitrate of silver may be tried in the manner we employ it in affections of the eyelid, in combination with nitrate of potash, made into small moulds. Nitrate of silver may be readily fused in a little platinum crucible, and applied on the point of a uterine probe. Dr. Lombe Atthill speaks strongly in favour of intra-uterine application of the solid nitrate of silver in sub-involution of the womb, attended by severe menorrhagia ; he regards it as ‘both simple and safe.’

* These are carried into the uterine cavity with the porte-caustique, and left there to dissolve. I have never known any ill effects follow the use of these crayons. We may with the same little appliance (Fig. 68) introduce small bougies of iodol, iodoform, cocaine, belladonna, and iodide of mercury.

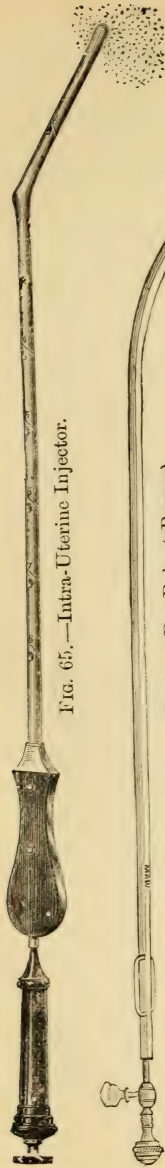


Fig. 65. — Intra-Uterine Injector.

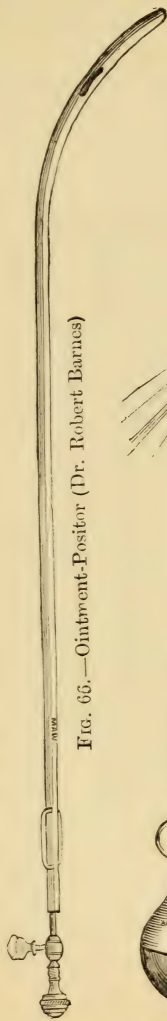


Fig. 66. — Ointment-Positor (Dr. Robert Barnes)

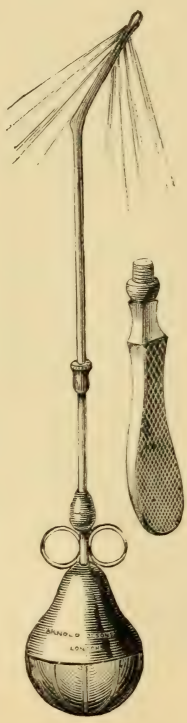


Fig. 67. — Intra-Uterine Injector.

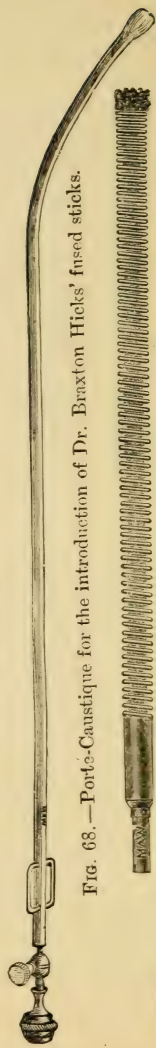


Fig. 68. — Porté-Cautique for the introduction of Dr. Braxton Hicks' fused sticks.

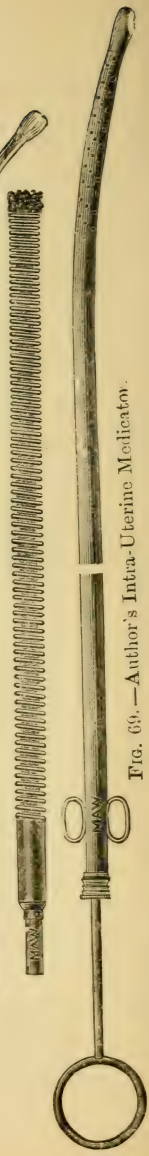


Fig. 69. — Author's Intra-Uterine Medicator.

These substances are applied through the porte-caustique (Fig. 68), a hollow uterine sound open at the end. The little caustic stick is inserted into this, and pushed home into the uterus by the stylet, which fits the tube accurately. But, as Dr. Atthill well insists, we must be careful, to withdraw the porte-caustique a little from the uterus when pushing in the stick, so as not to penetrate the uterine wall.



FIG. 70.—Small platinum crucible for fusing nitrate of silver.

Intra-uterine Suppositories.—I have from time to time found most benefit from very small suppositories (which can be readily had to order of any good chemist) made of cacao-butter and glycerine containing belladonna (gr. ii. of extract), morphia (gr. $\frac{1}{4}$ — $\frac{1}{2}$), carbolic acid (gr. ii.), iodoform (gr. iii.), tannic acid (gr. x.), and alum (gr. x.); these agents may be used either singly or in combination. To these we may add cocaine (gr. ii.). They can be inserted through the porte-caustique. As a rule, however, I do not lean to introducing unctuous or greasy substances into the uterine cavity. I can only repeat that I believe the safest, the most generally convenient, and most efficacious means of treating abnormal states of the endometrium is by means of the uterine probe and cotton-wool.

Potassa Fusa, and Potassa-calce.—Both these caustics, the former being the more deliquescent and the most powerful, are employed in certain cases of granular cervix, chronic hyperplasia, and malignant disease of the uterus. They are very severe in their action, and require to be applied with considerable caution. Their effects in causing contraction of the uterine tissue, or, if incautiously used, obliteration of the os, as also the danger to the surrounding

vaginal membrane, are to be remembered. They are thus applied. The patient is placed in the dorsal position, with the legs drawn up, and held apart. A large-sized Ferguson's speculum is introduced, and the cervix brought well within the tube. Some absorbent cotton-wool, saturated with vinegar, is packed round the lower part of the cervix, separating the rim of the speculum from the part to which the caustic has to be applied. The pencil of caustic is now taken in the holder, and used lightly or otherwise, according to the desired object. The more freely it is rubbed on, the greater the depth of tissue destroyed, and the larger the slough. A stream of vinegar and water is then directed on the part, the wool having been removed. A pledget of cotton-wool, soaked in equal parts of vinegar, glycerine, and water is now pushed up against the cervix, and allowed to remain in the vagina. Uterine pain after any form of medication is best and most speedily relieved by a subcutaneous injection of morphia, and a belladonna and morphia suppository introduced into the vagina. At night, to secure rest, the ordinary combination of gr. xxx. of bromide of ammonium or potassium, with gr. xx. of chloral, is one of the best I knew of.

CHAPTER VI.

DISORDERS OF MENSTRUATION—AMENORRHŒA—DYSMENORRHŒA.

OVULATION AND MENSTRUATION.—To comprehend any deviation from a normal and healthy act of nutrition of any organ, we must clearly understand the processes involved in the normal discharge of its functions and the anatomical and histological facts bearing on that act of nutrition, from its incipient stage to its completion. To no physiological process does this rule apply more closely than to the deviations commonly met with in the menstrual act of ovulation. Perhaps the most perfect example of a nutritive process, elaborated through the healthful interchange of function on the side of the circulating current on the one hand, and the tissues and the nerve elements on the other, is offered in the completion and perfection of the act of ovulation. There must be perfect relation of blood-supply, both in character and quantity, and healthful control of nervous influence, not only on the part of the nerves distributed to the various tissues involved—arterial, muscular, cellular—but on that of the central nervous system. Nowhere is this made more manifest than in the influence exerted on the ovary and uterus during mental states, or reflex disturbances, or shocks, which show their immediate effects in arrested and perverted menstruation. It is outside the scope of this work, as indeed it is not rightly within its province, to enter into a detailed description of the act of ovulation and the associated process of menstruation. This is more distinctly a portion of the physiological course of the student, and will be found dealt with in a more perfect manner than I could possibly hope to do in a work of this nature. It must suffice to remind the reader

of a few facts, connected with the act of ovulation, which bear on some of the clinical phenomena of menstruation.

Most important researches bearing on the part taken by the Fallopian tubes and ovaries in the menstrual act have recently been made by Bland Sutton and Arthur Johnstone, U.S.A. The former, as the result of his investigations on monkeys, has come to the conclusion that the mucous membrane is not disintegrated to the extent previously represented, and that only the epithelium is shed, while the utricular glands are enlarged and blood is discharged from the denuded epithelial surface. Dr. Johnstone regards the endometrium above the os internum as a cytogenic membrane and belonging to the class of so-called adenoid tissues, 'menstruation being for it what the lymph-stream is to the lymph-gland, or the blood-current to the spleen.' He looks on the simplest definition of menstruation as 'a periodic wasting of those corpuscles that are too old to make a placenta.' He agrees with Mr. Bland Sutton that the epithelium alone is shed, and that the mucous membrane is not disintegrated. (Proceedings of the British Gynecological Society, June 23, 1886.)

MENSTRUATION AND OVULATION.—In a paper read before the Gynecological Society of Great Britain, on 'The Coincidence of Ovulation and Menstruation,' Mr. Tait reviewed the physiological results in fifty-one cases of oöphorectomy with removal of the appendages. Miss Clark made most careful dissections of the ovaries, and noted the condition of the corpora alba and corpora lutea. In all, the ovaries were practically destroyed. Mr. Tait comes to the conclusion, from these dissections, that in menstruation we are dealing with a function associated with the uterus and Fallopian tubes, inasmuch as menstruation and ovulation were only 'coincident' in three out of the fifty-seven women; in seventeen it was not coincident; eight were doubtful. I must, however, add, that such pathological evidences, while they support the other proofs of the uterus being the prime menstruating organ, do not appear to me to invalidate the clinical importance of other physiological facts that establish the relationship between ovulation, at whatever time it take place, and the menstrual flow. Lemièrre explains such persistence of menstruation after removal of the ovaries and tubes by an organic habit of the nerve-centres and uterus, enabling the latter to discharge the unction.

At a certain period of female life, varying generally from the twelfth year to the seventeenth, and known as that of puberty, a sanguineous excretion occurs from the uterus. I have known several instances of menstruation occurring from the eighth to the tenth year.* Though not strictly appertaining to this subject, I may here mention the fact that, with my friend Dr. Gelston Atkins, of Cork, some years since, I induced labour on the 250th day in a girl of twelve years of age. She was delicately formed, and the pelvis was narrow. The forceps had to be used. The child survived only a short time. The young mother, who was never told what was the nature of her 'tumour,' was kept under chloroform from the time labour set in; the milk was suppressed with belladonna, and, so far as I know, she never discovered the nature of the operation performed on her. This flow of blood is the outward and visible sign of the completion of the ovarian function of ovulation, or the full development of a Graafian follicle, its rupture, and the escape of the ovum. Attendant on the first appearance of this catamenial flow, changes appear in the mental and physical nature of the girl: it is the springtime of her existence; and her whole system participates in the budding forth of her sexual life. There is hyperæmia of her sexual and mammary organs. Local congestions may occur in the ovaries, uterus and rectum; remote in other organs, as the brain, heart, and lungs; or reflex disturbances, having their origin in the ovaries, and the irritation of the ovarian nerves. And this recurring hyperæmia of ovary and uterus, with the associated vascular and nervous disturbances, continues for some thirty or forty years of the woman's life—her summer. And now we approach the

* Barnes has recorded a case of a girl, aged eleven, in which the catamenia commenced at sixteen months and continued regularly. And Mengus has reported regular menstruation in a child twenty-three months old.

critical autumn-time, when this fertilizing process begins to wane, and gradually ceases altogether—the period of the menopause, from forty-five to fifty, or thereabouts, when again we find her subject to local and remote congestions, cerebral affections, vicarious hæmorrhages from various organs, cardiac complications; at the same time occur exaggerated reflex disturbances and nervous ‘discharging lesions.’ These accompany that ‘change of life’ during which are developed those traits of womanhood which stamp with peculiar and characteristic features the period antecedent to the winter of old age. It is not, however, to the change in the uterine mucous membrane, and the periodical hyperæmia of the uterine tissues with the consequent flow of blood, that we are to look for an explanation of these phases and phenomena. It is to the antecedent act of ovulation. True, a woman may menstruate (in so far as a mere periodical flow is concerned) without ovaries, but then it is most probably the mere perpetuation of a habit. As a physiological act it has lost its prime significance. It is on the ovaries rather than on the uterus that the gynecologist has to concentrate his attention, in investigating the normal, and in treating the abnormal menstrual molimen. We do not find any accurate explanation of many of the phenomena of menstrual life. There is a something in these not to be explained by any anatomical or physiological facts connected with ovulation. The effects of its mysterious influence on the entire being of the woman may not be measured by any descriptive language. The explanation is not in the swollen and sensitive ovary, or in any changes that occur in the parenchyma, in the maturation and rupture of the Graafian follicle, or in the accompanying congestion of the Fallopian tube, or in the swelling proliferation and disintegration of the epithelium uterine mucous membrane.

This strange coincidence, of a mental and physical state being closely dependent upon the healthful discharge of

the function of a single organ, is best recognised when we watch the consequences of perverted action, or of any arrest or suppression of the ovarian function. 'The *essential thing*, as Schroeder says, 'is the discharge of the ovum ;' the escape of blood from the mucous membrane is an accessory occurrence which is, perhaps, only the indication of the retrograde metamorphosis of that membrane. Conception may occur while the external evidence of ovulation is absent; as we have seen that the menstrual flow may periodically appear when the ovaries are removed. The congestion of the ovaries and other genital organs may take place with the discharge of the ovum, and still there may be no laceration of the uterine vessels, and the usual escape of the disintegrated mucous membrane may not follow. From these few brief remarks we may infer how important to the health and well-being of the woman is the due performance of this function on the part of the ovary. And though we may not regard the uterine changes and flow as of the same essential significance, yet, remembering the hyperæmic condition of, and the local determination of blood to, all the genital organs at the time of menstruation, we can comprehend how serious may be the consequences of a partial or complete suppression of this escape of blood from the uterus, and the arrest of the normal process of disintegration and exfoliation of the uterine mucous membrane, and the resulting retention in the blood of the abnormal elements of excretion. This brings us to the consideration of the simplest departure from the normal act, viz., amenorrhœa.

Ovulation and Abnormal Menstruation.—To the student a short tabular statement of abnormal menstrual states may be acceptable.*

Menstruation occurs from puberty to the age of forty-five or fifty, every twenty-eight days or at a longer interval (quite compatible with health). The discharge lasts from three to seven days, or longer; consists of blood and disin-

* See page 118.

tegrated *débris* of uterine mucous membrane, the quantity of which varies with the duration of the flow. It is influenced by climate, temperament, coitus, habits and rank of life, temperature, blood-states (as exanthemata, phthisis, Bright's disease, chlorosis, anæmia, leukæmia), mental circumstances (as depression, shock, hysterical condition, the effects on the mind of illicit intercourse, seduction); local disorders of the genital organs and rectum (as fibroid developments, uterine version and flexion, hyperplastic states of the uterus); morbid growth of, or abnormalities in the development and position of the ovaries; any congenital or acquired stenosis or atresic condition of the genital canal from the Fallopian fimbriated orifice to the vulva.

Amenorrhœa : 1. Primary, frequently persistent (*emansio mensium*).

2. Secondary, usually temporary (*suppressio mensium*).

Dysmenorrhœa :—

Ovarian	.	{	Congestive
		{	(Neuralgic)
Uterine	.	{	Congestive and inflammatory
		{	Obstructive
		{	(Neuralgic)
		{	Due to congenital malformation
		{	Due to flexion of uterus
		{	Due to states of the blood
Atresic	.	{	Atresia of Fallopian tube
		{	„ uterine canal
		{	„ vagina
		{	„ vulvar orifice.

Membranous—A special form of uterine dysmenorrhœa.

Menorrhagia : 1. Catamenial excess (either simple excess in the normal physiological and pathological process, or the result of a morbid condition of the ovaries, uterus, or some other organ).

2. Climacteric ; occurring at the menopause.

Metrorrhagia: Abnormal flow of blood during the intervals between the menstrual acts.

Vicarious (diverted); pneumonic (hæmoptysis); nasal (epistaxis); gastric (hæmatemesis); cutaneous; renal; cerebral and retinal; rectal (hæmorrhoidal).

AMENORRHŒA.

Causation.—1. Removable causes (excluding pregnancy), many of those cited above as influencing ovulation and menstruation.

2. Irremovable—absence, or congenital malformation and arrest of development, of the ovaries, Fallopian tubes, or uterus; acquired disease of the ovaries, or uterus.

We find that the commonly occurring causes associated with a diminution or temporary absence of the menstrual flow are:

- (a) Anæmia and chlorosis;
- (b) Plethora and plethoric state;
- (c) Some accidental influence operating on the woman, as mental shock, fright, cold, sea bathing—all these repressing causes have a more decided effect if they occur at or about the time of a menstrual epoch; acute diseases and chronic wasting diseases; the exanthemata;
- (d) Congenital defects.

Differential Diagnosis from Pregnancy.—As it is the rule, though there are occasional exceptions, that the menstrual flow ceases during the pregnant state, it is always our duty, in any suspicious case, most carefully to exclude any chance of this condition being the source of the trouble. The student of midwifery has already studied all the signs and symptoms of the pregnant state. He is aware how difficult it is, before the uterus rises above the pubes, to speak with any degree of confidence of the existence of pregnancy. On no question must we guard our ex-

pressions or our suspicions more than on this; both in those cases in which the possibility of conception is for any purpose concealed or denied, and in those in which the desire of the woman is parent of the belief, and she assumes that she is or is not pregnant. It requires considerable tact to avoid committing one's self to an opinion until such a period of pregnancy has arrived when we should be able to speak with confidence.

I do not enter fully into the differential diagnosis of pregnancy; this is exhaustively done in every treatise on midwifery. This table of the most important proofs, divided over three periods, may be of service:

FIRST PERIOD.

SECOND PERIOD.

THIRD PERIOD.

Cessation of the menses; reflex and sympathetic disturbances; changes in the breasts; morningsickness; enlargement of the uterus and change in position, with commencing change in the os uteri and cervix; vaginal signs in alteration of colour and increase of natural secretion.*

Progressive increase in the size of the uterus, which continues until the close of pregnancy, with characteristic alterations in the abdomen; further changes in the breasts (areolæ—secretion); foetal projections and heart-sounds; ballotement; placental souffle.

Uterine contractions well felt; more characteristic changes in os uteri and cervix; all the signs of pregnancy becoming more manifest.

* What is termed Hegar's sign consists in the uterus losing its pear-shaped outline, 'the body being bellied out over the cervix in all the transverse diameters, especially antero-posteriorly.'

It may be accepted as a general rule, to which we have occasional exceptions, that we are correct in surmising that a married woman who has ceased menstruating, in fair health, with an enlarged uterus and softened os and cervix, is pregnant. We must not, however, be too ready to be influenced by her own assertions, or the fact that she may have menstruated, or rather thinks she has, and thus be too quickly led into passing the sound. Women mistake other blood discharges for those of menstruation, and the existence of pregnancy is not to be negatived because a woman has had even severe losses. I have known the pardonable error made more than once of the sound being passed for assumed subinvolution, and abortion follow. In both cases the woman ridiculed the idea of pregnancy.

From the fifth to the sixth month, in the great majority of cases, we can speak with confidence of the uterine enlargement being due to pregnancy. Yet remembering how often we meet with complications, such as fibroid tumours, ovarian cysts, ascites, flatulent distension, hydraminos, we had better keep always before us the fact that *the only absolute proof of pregnancy and infallible test is the auscultatory one of the foetal heart-sounds*. In all the others a man may be deceived. This must be so, or we should not have the fact occurring of the greatest gynecologists, past and present, committing pardonable errors in opening the abdomen to operate for a tumour, ovarian or uterine, and finding a pregnant uterus. Nor would we find the awkward mistake made in the opposite direction—woman, nurse, and practitioner awaiting the discovery of a phantom pregnancy and flatulent accumulation, or relief for ascitic accumulation by the operation of paracentesis abdominis.

Anæmic and Chlorotic states are easily recognised in the pale conjunctiva, the colourless lip and gum, the white complexion, and in marked leukæmia, the wax-like look of the skin, the anæmic first sound and functional irregularities of the heart, the jugular pulse or bruit, the pale retina, the puffy state of the face and eyelids, and the accompanying group of neuralgic or hysterical symptoms that are constantly associated with these physical signs. Most marked of these are headache, loss of appetite, or capricious tastes in diet, lassitude, dislike for outdoor exercise, sleeplessness, neuralgic pains in different places, attacks of syncope, and a rather characteristic pain referred to the left side of the chest beneath the region of the heart. It is in such a general depraved state of the system that we are often consulted. The watery blood, with red corpuscles diminished in quantity and altered in their

physical characters, does not respond to the demand of ovary and uterus; the vitality and nutrition of both organs are lowered. The act of ovulation gradually ceases, or may not occur at the proper time, is abortive and irregular; while the menstrual discharge is lessened, changed, or absent.

Plethora.—Just the reverse of this condition is met with in the *plethoric* and full-blooded. Here there is a hyperæmic condition of all the sexual organs. They participate in the general state of plethora of the entire system, and the other vital organs. The normal balance of blood-supply and nutritive growth and development is lost; congestion of both ovaries and uterus results. The act of ovulation is either prevented or arrested through this undue blood-supply; or it becomes at first irregular in time of occurrence, and in the quantity of the menstrual secretion, and, gradually interrupted, it finally ceases. This type of case is easily recognised. The ready flush, the high complexion, the throbbing vessels, the strong and full pulse, with accompanying symptoms of headache, functional heart palpitations, proofs of congestion elsewhere in the lung, kidney, or retina, are a few of the signs that tell us of the cause of the amenorrhœa.

Accidental Influences.—We find these in injudicious habits of dress, diet, exercise; in some mental shock; in the sequelæ of various acute diseases which have lowered the vitality of the system, or interfered at the time of its occurrence with the menstrual function. If we go carefully into the history of any case when first we are consulted, we can generally place our finger on the fault which has, directly or indirectly, led up to the cessation of the menstrual flow, or its altered character. Indeed, in a large number of cases that come before us, it is to a depraved mental condition we must look for the primary source of the evil.

Congenital Defects.—When we are consulted by parents, or by the patient herself, for delayed menstruation, before making any internal examination it is well to enter carefully into the previous history. We can ascertain if there has been an indication at any time of an effort at ovulation—recurrent pains at special times in the back or sides, or an attempt at periodical discharge of any kind:—if there is a general arrest in development in the direction of womanhood, both physical and mental; or, if we can trace to any accidental cause the arrest or suppression of the flow. If not, we must then keep before our mind the probability of congenital defects in ovaries, uterus, and vagina. After such an exhaustive examination, and if ordinary remedies fail to produce any effect, a careful digital examination in the presence of the patient's friend or nurse may be demanded; by its help we may decide the question of congenital defect. Such an early examination is more especially demanded in young married women, and in unmarried girls more advanced in years, especially if we have a history of old attacks of vaginitis, parametritis, uterine displacements, peritonitis, or more urgent symptoms indicative of retained menstrual flow.

Indications for Treatment.—These, once we decide the cause of the amenorrhœa, are clear. In anæmia—to restore, in the first instance, to the sexual organs their normal blood-supply, and correct the constitutional vice disposing to this morbid state; and secondly, to apply to these organs such local therapeutic means as are calculated to induce or re-establish the natural performance of their functions. We must correct those habits that have a deleterious influence on the general health, and the sexual organs, in particular.

Questions of clothing, diet, exercise, mode of living, and occupations, have all to be carefully gone into. The use of

warm clothing ; the wearing of light flannel next the skin, (vest and drawers) ; avoidance of those modern devices for strangling the abdominal and pelvic viscera ; the securing of due warmth in the extremities, hands and feet ; proper support for the under-clothing ; all must be insisted on. So it is a good plan for the practitioner to give each patient her individual diet-table systematically arranged, omitting all those articles of food which are calculated to cause or sustain dyspeptic states, and which are in themselves likely to deprave the blood. Sufficient quantity of animal food, taken, if necessary, in any of the forms of digestible and concentrated foods made by such firms as Brand, and Savory and Moore ; poultry, game, fish, and milk, given according to the digestive powers of the patient ; moderation in alcoholic stimulants, avoiding over-reliance on them, or their careless recommendation, or a fanatical denial of their therapeutic value ; some *good* claret (such as Leoville, La Rose, Margaux, Lafite), Carlowitz, Red Burgundy, St. Raphael wine ;* the combination ‘beef-iron wine’ of Messrs. Burroughs ; pepsine wine ; some of the numerous malt preparations, as malt extract, and ferrated maltine ; a little old brandy and milk taken a few times daily, or the much-abused but often most valuable of wines, genuine port†—all have their special virtues, and will assist our treatment according to the constitutional features of the case. Attention to the times of meals and the intervals between is of equal importance to their character. Speaking generally, light and digestible meals, not taken at long intervals, and never late at night, will be found most

* I can strongly recommend the St. Raphael wine for anæmic patients. It is richer in iron and tannic acid.

† The Australian wines, Auldana and Emu brands, are excellent substitutes.

judicious. So we must correct, when possible, those pursuits and their effects which tend to corrupt the blood. Overcrowding in sleeping apartments, heated rooms, ill-ventilated sitting and bed rooms, prolonged sedentary employment, much stooping or standing, excessive study and long school-hours, want of suitable outdoor exercise and amusement, and too violent muscular exercise have to be firmly condemned. How many of the future uterine troubles of adult and married life are engendered by the routine, monotony, and over-work of our modern boarding-school life, when the mother's watchful eye is absent, only those who are so often consulted for the results of both know. If parents were oftener alive to the danger, they might be more careful in the selection of the temporary home, on the domestic management and control of which so much of their child's future happiness depends.

Nor must we omit due attention to the cutaneous secretion—proper bathing of the entire body at a medium temperature (water 60° to 70° or 80°) if cold be not well borne; sea-bathing if it agree, and that a healthful reaction occurs after it. Proper friction is essential, especially of the lower part of the back and the abdomen, after the bath.* Dr. Atthill has suggested a plan which for years I have followed with success. The patient is directed, before she goes to bed, to sit, protected from cold, in a small bath of water at a temperature of from 60° to 70°. The feet are either placed in hot flannel, or in a small foot-can of hot water. After the bath the hips and lower part of the abdomen are well rubbed with a Turkish towel, and then the patient goes immediately to bed. Such spas as those of Kissingen,

* A capital sea-water bath may be made by adding a few ounces of the essence of seaweed (Harvey's, Margate) to the twenty gallons of warm or cold water. This preparation may be obtained through any chemist.

Kreuznach, Vichy, Schwalbach, Ems, Spa, may be resorted to.* A winter at St. Moritz, or Davos Platz, or in the Italian Riviera, if any phthisical tendencies are present, may be necessary. A trip to the south of France, a short stay in the Tyrol or Switzerland, or at some of our own equally efficacious health-resorts, such as Brighton, St Leonards, Hastings, Torquay, or Bournemouth; and in summer, a few months in Scotland, at the English Lake district, Wales, or at such watering-places as Southport, and Blackpool in Lancashire, will often, if assisted by proper treatment and regimen, restore the health and arrested functions, when nothing will affect any change in the impure atmosphere of the crowded city.† I briefly tabulate the most important therapeutical means for the treatment of amenorrhœa generally, reserving a few practical observations on some of the more useful of these drugs.

Iron (and its salts).

Arsenic.

Quinine.

Nux vomica and strychnine.

Ergot and ergotine.

Aloes. } In combination (as Pil. aloes c̄ myrrha) with
Myrrh. } iron.

Saffron.

Cannabis indica—Cannabin.

Apiol—Celerina.

Borax.

Permanganate of potash—Dioxide of manganese

Chalybeates generally.

Separately or in combination.

* Royat, in the delightful Auvergne district of Mont Doré, with its arsenical and iron spa, and a short distance from Bourboule, is a splendid resort for anæmic cases.

† See Chapter on Health Resorts.

Other Therapeutic Means :

Uterine sound.

Galvanism.*

Warm hip and foot baths.

Friction to spine.

Leeches to anus and inside of thighs.

Fomentations to the breasts.

Stimulating enemata.

Iron.—Before administering any form of iron, it is well to prepare the system for its administration. This is best done by the exhibition of some gentle saline aperient for a few days, such as Hunyadi Janos water, or any of the effervescing saline preparations in ordinary use. It is well also to act on the liver by means of a mild laxative pill. We may combine a small quantity of hydrarg. \bar{c} creta with some vegetable cholagogue, as euonymin or iridin. For a few days before commencing the iron, an alkaline mixture, of bicarbonate of potash, or Mindererus' spirit (liquor ammoniæ acetatis) with spiritus etheris nitrosi—the simplest and best saline combination of all—may be prescribed. The diet should be regulated, heavy meals should be avoided, and farinaceous food, with milk, principally taken. Sufficient time should be permitted to elapse after meals before the iron is taken; it should not be given while fasting. The particular preparation selected must depend on the features of the case, or the tolerance shown for the exhibition of iron, and the exact effect we are anxious to produce. The preparations I find most efficacious, in a large number of cases, are reduced iron, which can be given in pill or powder, alone or in combination; dried sulphate of iron, which can be combined

* This may be combined with properly-applied massage (see *Massage and Weir Mitchell Treatment*).

with quinine, arsenic, or nux vomica in pill; the dialyzed solution of iron; the compound iron mixture; tincture of perchloride of iron; the solution of the chloroxide of iron; the compound forms, ammonio-citrate and potassio-tartrate; the effervescing varieties and these in combination with quinine; bromide of iron, when we wish iron in conjunction with the bromides, is useful. I have found such preparations as those of Blanchard (pills) and the perles of Tisey borne when other forms of iron were not tolerated. The phosphatic preparations (syrups of the hypophosphites of iron and quinine), Fellow's, Dusart's, and Easton's syrups, or any of these combinations, may be assisted by chalybeate waters* and such preparations as the ferrated maltine and beef-iron wine.

Arsenic, through its action on chronic uterine inflammatory states, is perhaps the most useful medicine we possess. The arsenious acid ($\frac{1}{40}$ — $\frac{1}{50}$ of a grain) may be well administered in pill, in conjunction with either quinine or iron, taken three times daily after food. Fowler's solution, as a liquid preparation and capable of combination, answers all our purposes. The peculiar susceptibility of some individuals to the effects of arsenic, as seen in irritability of the stomach, erythematous attacks of the skin, and inflammatory conjunctival states, is not to be forgotten when we are giving it for the first time to a patient. *Quinine* we may combine in administration with any medicine indicated for amenorrhœa. It may be given either with arsenic or iron, aloes and myrrh, ergotine, nux vomica in the form of pill, with various salts of iron; or the vegetable infusions, and any of the many elegant forms in which quinine is now prepared. Messrs. Corbyn, Stacey and Co. have prepared for me three pleasant and efficacious effervescing preparations, salicylate

* Reulaigne water is a most useful and agreeable chalybeate water for anæmic cases.

of quinine, salicylate of quinine and caffein, salicylate of quinine and iron, which can be prescribed in combination. The hydrochlorate of quinine, when we wish, can be conveniently given with the tincture or solution of the perchloride of iron. *Nux vomica* or *strychnine*, next to quinine, is perhaps the most valuable vegetable tonic we possess; more especially it is of service in the atonic and debilitated conditions associated with suppressed menstruation. It may be given in the form of extract, with either quinine, arsenic, or iron, in $\frac{1}{4}$ -grain doses, three times daily, after meals, or at times combined with ergotine. It is particularly indicated in those sluggish states of the bowels that we so frequently find complicating amenorrhœa. Here it may be added to an aloetic pill. But the most reliable mode of administering this drug is as the liquor strychniæ of the pharmacopœia. It is better to prescribe a standard quantity, as ℥ii. of the liquor (gr. i.), and to have this contained in a given quantity of water, ℥xvi.—℥xx.; thus the ordinary half-ounce dose contains $\frac{1}{32}$ to $\frac{1}{40}$ of a grain. With glycerine and the dialyzed preparation of iron it forms an excellent mixture, to which the tincture of quinine may, if we so desire, be added. *Ergotine*, as an emmenagogue, is a useful adjunct to any of these medicines. It can be given ($\frac{1}{2}$ -gr.—gr. i. doses) with quinine and *nux vomica*. Ergot and most other pure therapeutic agents act mostly as emmenagogues. Borax I have occasionally found service from. It is best given by itself in the form of powder. Apiol granules are of use, especially if there is dysmenorrhœa, and have a similar action to ergot.* Of the other therapeutic means, their mere enumeration is sufficient to indicate the object in employing each. I shall therefore only make a passing allusion to them. Before we take up *the uterine sound* to induce a menstrual act, we

* Dioxide of manganese, in the form of tabloids (Burroughs and Wellcome) may be tried with advantage.

must have positively assured ourselves of the absence of pregnancy. Seeing the ill uses to which the sound is put in inducing abortion, I confess that I do not like the idea of suggesting its habitual or even occasional employment as a means of treating ordinary amenorrhœa. I very rarely pass it for this purpose myself, and I am certain that if



FIG. 73.—Stem of Barnes (Galvanic).



FIG. 74.—Rigid Galvanic Stem.



FIG. 72.—
Peaslee's Stem.



FIG. 75.—Simpson's Galvanic Stem.

practitioners do interfere locally, they have a more efficacious means in electricity or the employment of the galvanic stem and pessary. In the Chapter on Electro-Therapeutics the various vaginal and uterine electrodes are shown, and the methods of using these are fully described.

If the galvanic stem is inserted, the uterine canal must be

sufficiently dilated to permit of its passage, and the stem passed into the canal on a stem introducer, either by the direction of the finger or the aid of the speculum. The patient should be placed in the semi-prone position and the duck-bill speculum used. The uterus may then be brought well under control with a uterine hook, and the stem inserted; it ought not to be so long as to touch the fundus. It should be withdrawn if pain is complained of. Once inserted, if there is a disposition to slip out, it can be retained in position by a small tampon of salicylic wool soaked in glycerine. All kinds should be looked at occasionally and reinserted, lest the secretions may have corroded the metal and softened the stem.

TREATMENT OF AMENORRHOEA.—*St. Raphael Wine*.—This wine should be given with some food. It will be best borne if commenced in small quantities (ʒi. three times in the day), and gradually increased.

Aletris Farinosa.—This drug will be found useful in cases of associated amenorrhœa and dysmenorrhœa, also in erratic menstruation; 20—30 drops of the liquid extract may be given alone, or combined with tincture of digitalis.

Aletris Cordial.—This patent preparation I have found of use in several instances, given either alone or in combination.

Dioxide of Manganese.—This most valuable medicine for amenorrhœa, in anæmic and chlorotic cases, and in emansio mensium generally, may be given in gelatine pills, or in the tabloids of Burroughs and Welcome, which I find most convenient. I give two tabloids three times in the day (each tabloid containing grs. ii. of manganese dioxide).

Liquor Caulophilla (Pulsatilla).—I have tried this preparation in several cases. Its effect has been variable. It has answered well in some cases of dysmenorrhœa with scanty flow. I have found it more efficacious when given in combination with '*Celerina*.' I can recommend this combination, not alone as an emmenagogue, but as a general tonic. '*Celerina*' I have had considerable experience of in all disorders of menstruation and the atonic conditions associated with uterine disorders generally. I have frequently given it with vascular tonics, and with the best results. *Celerina* is well administered with Horsford's Solution of the Acid Phosphates (a preparation of which I have the fullest experience and can speak most highly), or Fellow's Syrup of Hypophosphites. (*Celerina* contains celery, coca, kola, viburnum, grs. v. and ʒi.)

Santonine.—Whitehead and Hannah have found that santonine in 10-gr. doses is an efficient emmenagogue.

Massage.—Massage is a powerful aid to treatment in amenorrhœa and dysmenorrhœa. The massage may be general, but more specially directed to the lumbar and sacral regions or the gluteal muscles. Its use may be combined with the warm bath of sea-salt or pine, and galvanism. The reader may refer for details of the massage treatment to the chapter on Massage.

Seaweed Essence and Pine Baths.—An invigorating bath of seaweed essence may be made by adding half-pint of Harvey's *Essentia Alge Concent.* to the 20—24 gallon bath. I have large experience of this preparation, and can most confidently recommend it (Harvey, Chemist, Market Place, Margate). Patients can obtain it straight from the maker, and it is not expensive.

Pumiline Essence baths are very refreshing, as also are Kerr's (Bond Street) Pine baths.

CHAPTER VII.

DYSMENORRHŒA.

Some General Remarks on Pain.—Such states as congestion, obstruction, neuralgia, all associated with more or less spasm, are constantly met with in the same individual. In one large group of cases we find a tendency to amenorrhœa and scanty menstruation. The pain is clearly associated with anæmia; while in others, the tendency is rather to plethora and congestion. So also the situations in which the pain occurs are variable; in the region of the ovaries (generally one ovary), if they are, as is frequently the case, the organs at fault; pain in the back and over the pubes, if the principal cause of the dysmenorrhœa is in the uterus. Reflex pain in the head, chest, or abdomen, accompanying the local pain, is present in some degree, in most cases of chronic dysmenorrhœa. Equally uncertain are the nature of the pain and the time of its occurrence, varying from some slight aggravation of the common systemic disturbance antecedent to the menstrual flow, with pain referred to the back or sides, disappearing when the discharge appears, to the indescribable agony which the friends of the patient say ‘they can only compare to labour-pains.’ The pain may precede the flow, or cease as this commences, or it may last all through the period, exhausting the woman physically and mentally. It is in such cases that the mind after a time is weakened, each period causing further prostration, until at last delirium is present, or

perchance some permanent form of mental aberration results. The term 'hysterical' is often employed to describe the pain complained of in these cases ; so also a special class of pain is spoken of as 'neuralgic.'

I am afraid both terms are apt to mislead in practice. It cannot be doubted that a large amount of the pain complained of we are justified in grouping with those other symptoms which are met with in the general state known as hysteria, and with the type of pain looked on as neuralgic. And it is likewise true that the mental condition of the woman leads her to exaggerate the suffering, and describe it in extravagant language, while her weakened nervous system cannot sustain any acute or prolonged pain. This is still further exaggerated by the recurring anticipation before each period. But if such considerations influence a practitioner to regard any form of pain as fanciful or unreal, and induce him to look on his patient as 'whimsical' and, as he is commonly pleased to say, 'hysterical'—though what he may mean by this latter generalization he would find it often very hard to explain—he will make a serious mistake. It may lead him off from a careful examination of his patient ; and the source of the disorder in ovary, uterus, or vitiated state of the circulation, or in a depraved nervous system, may be overlooked. It is the safest rule in practice *never to despise pain*, no matter how trivial, and always carefully to seek for the cause of it. Not the less must we do so because we feel convinced that our patient's mental powers are weakened.

It has been reported that a woman who suffered agony from ovarian dysmenorrhœa was completely relieved by the deception of an incomplete Battey's operation. She was placed under chloroform, and only the preliminary cutaneous incision made. I have myself seen the application of a metal disc over the ovary relieve ovarian neuralgia. Not

long since I had a patient who, for some time, had morphia injected subcutaneously for the relief of ovarian and other pains: she suffered from most severe dysmenorrhœa. Occasionally she craved for the morphia, and implored us to increase the strength of the injection. By the justifiable deception of seeming to yield to her entreaty, while frequently only pure water was used, she had a good night's rest, and expressed herself as completely relieved the next day. We have no stronger proof of psychical influence over physical conditions than in the various applications of metallo-therapeutics, and the strange effects of metal discs applied for the relief of hysteria and hystero-epilepsy. I by no means desire to be understood as doubting the conclusions of the eminent French psychologist, Professor Charcot.* I think that in ocular therapeutics, and in the effects of the metals when applied for various retinal states, we have evidence of the direct physical results of metallo-therapy. I refer to the work of the Salpetriere physician rather to impress on the student's mind the double-sided nature of most ovarian disorders. On the one side physical, from the slight congestive and hyperæsthetic to the various pathological conditions met with; on the other, psychical, as seen in all the so-called hysterical affections and states, complicating both the normal act of ovulation and any abnormal departure from the healthful performance of the ovarian function. From what has been said, it may be gathered that I regard as of

* Charcot originally took the view that the ovary is the *point de départ* of the paroxysm in the attack of hysteria and hystero-epilepsy—moderate pressure over the ovary inducing the *aura hysterica*, while more energetic compression arrests it, and also cuts short an attack, even when the convulsions have commenced. Pressure is made and maintained by the closed fist, which is pressed into the iliac fossa. Dr. Grailly Hewitt has drawn attention to the fact that this pressure also acts on the uterus, compressing its vessels, and diminishing uterine congestion. He regards uterine displacements as having more to say to the hysterical phenomena than the dislocation of the ovary. Epileptic fits are sometimes stopped by pressure in *males* in the inguinal region. This acts on the sacral plexus of nerves, and the explanation is probably the same in some women.

doubtful scientific accuracy any classification which has been made of dysmenorrhœa; yet here, as in other efforts to classify affections in which no well-marked lines of demarcation exist, we gain much in clinical diagnosis and treatment from the grouping of ideas resulting from a classification, though it may not be critically accurate. Broadly, we keep always in our mind, in practice, the dysmenorrhœa, which has its source in the ovary and its appendages rather than in the uterus. The pain is characteristically ovarian, and we seek for congestion, swelling, sensitiveness, displacements of the ovary; there may be adhesions or effusions, and localized swellings in the broad ligaments or Fallopian tubes. Or, on examination, we find immediately a satisfactory explanation of the suffering in the formation of the uterus, in the congested cervix, the contracted uterine canal, some flexion or version, or an inflammatory state of the mucous membrane of cervix or fundus. The relation of ovary to uterus is too close to expect to find this distinction, of ovarian and uterine dysmenorrhœa, clinically marked in a large number of cases; and thus we have the affected ovary reacting on the uterus, and any serious inflammatory affection of the latter organ influencing the former. But we are constantly meeting cases of dysmenorrhœa in which we can detect no fault either in the ovary or uterus. The uterus and ovaries are normal in size, position, and their freedom from adhesions; there is no fault in the patency of the uterine canal. Here we must look to the circulation or nervous system for the cause of the pain, and this is obvious either in the depraved quality of the blood, as in some anæmic state on the one hand, or in excessive blood-supply—a general plethoric condition of the system—on the other.*

* *Pressure on the Ovary.*—It is generally believed now that the relief of pain which follows deep pressure on the ovary is due to its effect on the *pelvic nerves* and the ovarian plexus.

CONGESTIVE AND OBSTRUCTIVE DYSMENORRHŒA.

Predisposing Causes of Congestive Dysmenorrhœa.—Plethora; arrested or suppressed menstruation; inflammatory states of the uterus and endometrium; displacements of the uterus; subinvolution; fibroids; polypi.

Symptoms.—Pelvic pain frequently preceding the appearance of the menstrual flow, at times continuing during the period, generally aggravated previous to, and for the first twenty-four hours of, the discharge; the pain may be accompanied by constitutional disturbance; the uterus is found swollen, tender and sensitive both to external pressure and internal examination; on a vaginal examination with the speculum we frequently find the characteristic mucous plug of endometritis blocking up, or hanging from, the os uteri.

Predisposing Causes of Obstructive Dysmenorrhœa.—Mechanical obstruction to the flow of the menstrual discharge, due to stenosis of the cervical canal or os uteri; congenital malformations; uterine displacements which cause a narrowing and bending of the canal, and which favour interstitial effusions into the cellular tissue of the uterus with resulting hyperplasia and contraction; traumatic—operative measures which result in stenosis; polypi and fibroids.

Symptoms.—Pelvic pain varying in intensity, often agonizing, preceding and accompanying the menstrual discharge; at times severe constitutional disturbance, violent headache, and sickness of the stomach; the mind may become weakened by the recurring agony, and mental delusion follow, or the patient may even become maniacal. Pelvic peritoneal symptoms are frequently present; and the onward passage of the blood being prevented, a pelvic hæmatocele may form. There is, commonly, as also in the con-

gestive varieties, considerable ovarian irritation, with pain and sensitiveness of the ovaries ; neuralgic pains ; attacks of uterine colic and spasm ; hysterical tendencies. Vicarious hæmorrhage may occur elsewhere ; retinal infarctions and effusions, epistaxis, hæmatemesis or hæmoptosis ; the blood becomes depraved ; the patient is anæmic or chlorotic ; the skin may have a yellowish-green or discoloured look. It may be that many of these symptoms are in abeyance until the increased sexual activity and local determination and excitement, consequent upon marriage, react on both the ovaries and uterus. Thus frequently we find the first great distress and pain complained of after marriage.

Spasmodic Dysmenorrhœa.—There is a variety of dysmenorrhœa which has been called spasmodic, and in which it is assumed that spasm of the uterine muscular fibres around the isthmus uteri plays the most important part in the production of the pain. We have considered the symptoms associated with the term ‘obstructive dysmenorrhœa.’ I speak of ‘obstructive’ as distinct from ‘atresic’—*i.e.*, more or less of mechanical obstruction to the menstrual flow due to congenital or acquired contraction or partial occlusion of the uterine canal. I do not refer to atresia of any part of the genital tract, whether of Fallopian tube, uterus or vagina, or imperforate hymen. The two conditions must always, both for etiological and clinical considerations, be kept distinct. The forms congestive and obstructive touch each other closely, both from a pathological and clinical point of view. Congestion leads to obstruction. Impediment to free flow tends to congestion. Contraction of the uterine canal is a result common to both the congestion that follows a version and flexion, a hyperplastic effusion, a growing fibroid, an inflammatory state of the endometrium. More of the nature of an obstacle to discharge is the presence of a small polypus. This possible, and indeed probable, cause of dysmenorrhœa

is too often overlooked, and the step of dilatation and exploration of the uterus consequently is neglected—a step as beneficial from a therapeutic point of view as it is essential from a diagnostic. Traumatic contraction gives us the same results when it occurs from operative interference or rash therapeutical applications. These varieties of dysmenorrhœa are, I think, rightly distinguished from that which is the consequence of stenosis associated with congenital malformation of the uterus, as recognised in the characteristic conical cervix and pin-hole aperture, or any of its varieties, or the imperfectly developed uterus with short cervix. Yet, as we are classifying a symptom and not a pathological condition, we must be satisfied to include this frequently occurring misfortune under the heading of ‘obstructive.’ Obviously it is scientifically inaccurate.

For my part I prefer the classification of dysmenorrhœa as already given, p. 118.

Thus, uterine ‘congestive’ would include simple congestive conditions, plethoric states; ‘obstructive,’ such impediments as polypus and fibroid tumours, traumatic contraction; ‘inflammatory’—endometritis, metritis; congenital malformations, causing atresia or stenosis of the os and cervix; flexions and versions; morbid blood states—as anæmia, chlorosis, and other depraved conditions.

In the classification I have given, I have not included that form of dysmenorrhœa generally described as ‘spasmodic.’

Every practitioner will, however, meet with cases of dysmenorrhœa in which he can find no satisfactory reason for the pain, in any abnormal state either of uterus or ovary. Even if there is a version or flexion, he finds that the uterine canal is pervious; he rectifies the displacement, and still the pain recurs. There may be some congestion of the uterus, and ovarian tenderness, or hypersensitiveness of the internal

os on passing the sound, yet not sufficient to explain the violent spasmodic pains that precede or accompany the earlier appearance of the menstrual discharge. At times we notice, as characteristic of this form of pain, that the patient states that some clots have passed, and that on the appearance of these the pain has been relieved. The passage of these clots is occasionally followed by a profuse, or rather prolonged, flow. And this brings me to these questions—

1. Is there such a distinct cause of the dysmenorrhœa in uterine spasm as to warrant our regarding this uterine contraction as a special form of painful menstruation, and either pathologically or clinically distinguishable from other forms?

2. Is it correct to assert that the pain has its *source* altogether in the uterine spasm and not in the mechanical effects of congestive closure, contraction of the canal from flexion, or congenital stenosis?

The truth of the mechanical theory of the pain of dysmenorrhœa has been altogether disputed by Dr. Matthews Duncan. His views may be summarised thus:—

‘The most characteristic form of dysmenorrhœa is spasmodic;’ it is ‘of the nature of a neurosis;’ is synonymous with neuralgic, and is ‘in its essence’ due to ‘morbid contractions of the uterus, occurring in connection with menstruation.’ These contractions are clonic; they ‘come in pangs,’ and when the pain is incessant it is because the uterine contraction is tonic. He regards as analogous diseases the after-pains of pregnancy and spasmodic asthma. ‘Nothing can be more erroneous,’ he thinks, than the statement ‘that flexion of the passage obstructs the discharge of blood.’

He is satisfied that it is bad pathology that regards an extreme flexion as the cause of damming up of blood in the body of the uterus, and the usual consequences that follow

from such blood accumulation. The fact that a woman has not violent dysmenorrhœa after the first two days of menstruation as a rule, he looks on as subversive of the mechanical theory. Its periodicity and the influence of climate on the pain, he thinks, still further upset the obstruction theory. In short, he ignores the influence of flexion, version, pin-point os uteri, stenosis in producing the dysmenorrhœa. If these views be correct, obviously much of the modern teaching is erroneous, and must be abandoned. I have to confess that I cannot regard Dr. Duncan's arguments as convincing. I rather see in spasm a *consequence* of a pathological condition.

There still is, in my view, a strong analogy between the pain in uterine obstruction and that which is, in the male, the result of urethral congestion, strictured conditions, and gouty urethritis. In the urethra, as in the cervical canal, it is not necessary that there should be any considerable contraction to produce spasmodic closure. We can pass a large-sized bougie through the urethra of a patient who a minute before could not pass a drop of urine. The *pain* is the pain of retention rather than spasm. Even though there be recurrence of the spasmodic condition, when we overcome the obstruction (in this case both congestion and spasm) the pain disappears.*

* It is true that various degrees of flexion are at times to be met with in women who have never suffered from dysmenorrhœa. Take such a case as the following:—A lady, aged thirty-one, married nine years; two early abortions shortly after marriage; has continued regular both in quantity and periodicity of discharge since; has never since she was sixteen been irregular, nor has she at any time suffered pain. Her husband, a medical man, induced her, for the first time, to submit to an examination to ascertain if there existed any cause for the sterility. She is highly nervous. On examination I found a rather sharp ante flexion of the uterus, which was evidently of old standing. I could only make a digital and bimanual examination, but I was able to satisfy myself that the uterus was not enlarged, nor was it sensitive. The os was normal. Here the flexion had not caused congestion, or obstruction, or apparently any local derangement of the uterine nerves.

Then we have the irritation of a gouty blood current causing spasmodic closure of the urethra, and producing obstruction. It is periodical, and is relieved by diet and hygienic measures. But even if there be no considerable obstruction, and simply an abnormal condition of the tissues and nerves of a sensitive part, acute reflected pain may occur elsewhere. Witness severe urethral pain with hæmorrhoids and remote pains in the extremities from stricture of the urethra. In asthma, instanced by Dr. Duncan, the pain or distress is distinctly caused by the impeded blood current, and we have to look altogether beyond the phenomenon of spasm for the proximate cause of the obstruction. Doubtless certain uterine contractions are painful, but all are not so, as, for example, the contractions of the uterus which occur throughout pregnancy, and which the woman is unconscious of. These are purely physiological contractions; they are not the pathological ones of the patient suffering from dysmenorrhœa, or, for the matter of that, the after-pains of labour, in which we often have obstruction, and where there is a foreign body to be expelled. To neither can we apply the term 'morbid.'

In those exceptional cases in which we can on examination find no abnormal state to explain the dysmenorrhœa, we may feel certain that it is for the simple reason that we have not been able to discover it. The subtle relationship of ovary and uterus is sufficient to account for sympathies and reflex acts that we can find no physical explanation of. We must allow that it is the exception to meet any severe case of spasmodic dysmenorrhœa without some attendant abnormal state of the uterus or ovary to explain it. Malformed cervix, contracted cervical canal, congenitally small uterus, and one in which a healthful act of ovulation fails to find its external physiological expression in the proper menstrual flow; endometritis; a flexed uterus, hyperplastic

and hypertrophied, or imprisoned by a cellular effusion—all are found associated with the spasm. For these and other reasons, which I do not stay to give here, I believe the term 'spasmodic dysmenorrhœa' to be misleading and unscientific. I still adhere to the opinion I have always expressed to students, that spasm is an accessory symptom in most forms of dysmenorrhœa. That it accompanies the pain is true, but that it is the consequence of the depraved blood, the irritable nerve, the abnormal tissue, the contracted canal, the mechanical obstruction of polypus and fibroid, and the inflamed endometrium, is likewise true. And when we come to ask what light does treatment throw on the nature of this affection, I think every therapeutical step we take tends to prove the obstructive theory. Dilatation of the canal by tent or bougie, division of the cervix, and the posterior section of Sims, the relief afforded by galvanism, by suitable intra-uterine stems, by such a medicine as apiol, and various other therapeutic remedies—all tend, I maintain, to support the older view of this diseased symptom being the consequence of any one or several of the pathological states before referred to.

Mechanical dilatation for this 'non-mechanical' condition Dr. Duncan heartily advocates. Here I quite agree with him. And I believe that in suitable bougies we have the most perfect means of securing safe and rapid dilatation of the uterine canal. The bougies I have devised possess these advantages over Hegar's:

1. They are easier of insertion and of manipulation.
2. The momentum gained by the weight of the metal is of advantage.
3. They can be moulded to any shape at the will of the operator.

I believe the time is approaching when for all such cases tents, sea-tangle, and tupelo will be generally discarded for

forcible dilatation. Still, there are cases in which the practitioner may not feel himself justified in resorting to the force necessary to dilate a small cervical canal. Here tupelo, or laminaria and subsequently tupelo, should be employed.*

General Treatment of Dysmenorrhœa.—In determining the treatment of any case of dysmenorrhœa, we must be guided by the cause of the pain, and our remedies, general and local, should be such as are indicated by the constitutional aspects of the case, and any local fault that we may detect. Our first aim should be to correct any constitutional vice, such as general plethora, anæmia, chlorosis, dyspepsia, gout, hysteria, constipated bowels, and those habits which lead up to depraved blood conditions and interference with the general health. Attention to all those matters already referred to in the instance of amenorrhœa will be necessary—climate, food, clothing, and exercise, and abandonment of injurious amusements and occupations, or morbid excitements. Change of air, proper exercise, healthful and regular diet, with attention to the bowels, will cure many a case of dysmenorrhœa without further interference. With anæmic and chlorotic complications, the different chalybeates before referred to, and especially the combination of arsenic, iron, and quinine, must be tried. If we are suspicious of a gouty diathesis, the salts of potassium, lithia, soda, magnesia, are indicated, and these can be given with the bromides of potassium and ammonia, or with colchicum or guaiacum. The salicylates of quinine, lithia or soda (effervescing or granular) will be found agreeable and

* *Dilatation Treatment of Dysmenorrhœa.*—The dilators of Duke, and the three-bladed dilator of Wathan, are shown at page 62. It is sufficient here to say that the treatment of dysmenorrhœa by dilatation has maintained the reputation it has been steadily gaining in recent years. I believe that dilatation is the *sine quâ non* of treatment in obstruction and congestive dysmenorrhœa.

useful preparations. The combination of iodide of potassium, bromide of potassium, and bromide of ammonium, is most valuable. Amongst the English spas those of Buxton, Bath, Cheltenham, Harrogate, and that of Strathpeffer in Scotland, or one of the Continental waters, especially those of Kissingen, Ems, Bourboule, and Royat, may be tried. In atonic conditions of the bowels attended with flatulence, tincture of nux vomica with glycerine, and such carminatives as the compound tincture of chloroform or the spirit of lavender, will frequently relieve. In dyspeptic cases, if there be gastric acidity, the salts of bismuth in combination with carbonate of soda, especially the oxychloride of bismuth, and pepsine, or lactopeptine, are indicated.

Aperients.—For constipated bowels we should not hesitate, if laxatives and mild purgatives fail to operate, to advise the occasional resort to enema.*

Glycerine Enemata and Suppositories.—These form a most valuable means of relieving the bowels, especially in the instance of women. From ʒss.—ʒj. is administered by means of the proper rectal glycerine syringe. Oidtman's purgative is a suppository of soap, glycerine, and rhamnus frangula. Glycerine suppositories made with cacao butter can now be had of any chemist, and of any strength desired. It is convenient to attach a narrow rubber tube to the small syringe, so that the patient can administer the enema laying on her back. I generally order equal parts of water and glycerine, ʒss.—ʒj. of each. In some instances I have had to abandon glycerine enemata on account of the pain they caused. Frequently they produce a burning sensation in the rectum.

* The Pulvis Glycyrrhizæ Co. of the German Pharmacopœia, in doses of 30 grains to a drachm, may be given as a mild but effectual laxative in the mornings.

Rubinat Water.—This is an excellent aperient water. I find it acts well with cascara sagrada, given in Burroughs and Welcome's tabloids (one or two) at night, the water being taken the following morning—three-quarters of a wineglass with a spoonful of hot water added.

Sulphovinate of Soda is a very valuable aperient for women (especially during pregnancy). A dessert-spoonful is given with a teaspoonful of syrup of lemon, and half a tumbler of seltzer-water which is added from a syphon.

Of the natural waters, Hunyadi Janos, Æsculap, Friedrichshall, Pullna, Carlsbad, Victoria, are the simplest, and, if they act, the best saline aperients we have.* They should be given early in the morning, and a little warm water (about a tablespoonful to the wine-glass or two of Hunyadi Janos) added. The liquid extract of Cascara Sagrada is a very useful aperient (extract cascara liq. ʒi., glycerine, ʒi., water, ʒvi—ʒss. as a dose). Generally, a small cup of warm tea or coffee, taken immediately after, will assist the action. A mild alterative or aperient pill can be taken the night before. With many, a tamar confection is quite sufficient an aperient. But habit has much to say to constipated bowels, especially in women. We should insist on a daily effort being made, after breakfast, to relieve the bowels, and often a drink of cold water, at or after breakfast, will help. A moist pack, worn over the abdomen at night, made of a few layers of lint wrung out of tepid water, and covered with an oiled silk pad, I have frequently known assist the action of the bowels. So far as possible, we should avoid drastic purgatives, or giving encouragement to the constant use of every variety of 'aperient pill.' Some brown bread, softer food, fruit, and vegetables, with some simple assistance, will generally obviate the necessity for so injurious a custom.

I could instance many cases of obstinate costiveness in which forcible dilatation of the sphincters under ether has been followed by permanent cure. I select the following:—A lady from Australia consulted me in 1886. During her pregnancy, four years previously, she was attacked with severe vomiting when the constipation first became troublesome, had ever since been relieved by enemata, and that with difficulty; catamenia regular; constant oppressed and uncomfortable feeling. On examination, I found the uterus healthy and in its normal position, the rectum loaded and hæmorrhoidal; there was a vaginal leucorrhœa. The following day, under ether, I forcibly, with my hand, dilated the sphincters. A few fibres of the external were ruptured; the rectum was emptied of its contents. An olive-oil enema was given the next morning. She was placed on cascara sagrada and a mild pill of belladonna and nuxvomica, and from this to the day she left England, a period of four months, the bowel was regular, and she never used an enema. This case is only quoted as an example of numbers I have most successfully treated on the same plan.* This course may be assisted by the use of a galvanic current passed over the bowel and in the course of the colon daily. This is well supplemented by a course of abdominal massage. If the pain be referred particularly to the region of the ovaries, and assumes a neuralgic type, the bromides of sodium, potassium, and ammonium are indicated. An excellent combination is that of bromide of potassium (gr. xv.), and hydrate of chloral (gr. xii.), given at intervals of four hours when the pain is felt. An enema of chloral and bromide of potassium will be found of service. Tincture or extract of cannabis indica, tannate of cannabin, humulus lupulus (tincture or extract), lupuline, monobromate of camphor, apiol (in capsules), nepenthe

* See Chapter on Massage.

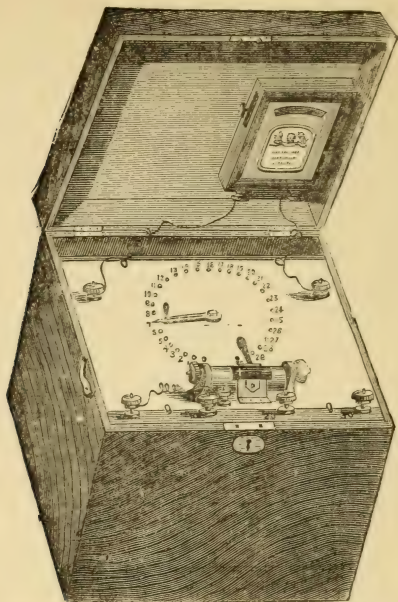


FIG. 76.—Portable Voltaic Battery for general application, 40 Leclanche cells, Accessories, Collector, Interrupter, Current Reverser, and Galvanometer (Coxeter).

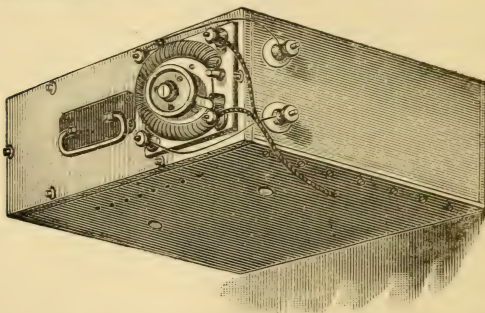


FIG. 77.—Cautery Battery (Accumulator), with Rheostat, to control the amount of heat (Coxeter).

or codeine at night, or the subcutaneous injection of morphia, are all of use to subdue the pain.

Hysterical and Neuralgic Cases.—There is a strong objection to resorting to the subcutaneous injection of morphia in hysterical women if we can possibly avoid doing so. Often a habit and craving is encouraged, with all its pernicious consequences ; or, if persisted in, the morphia acts on the brain, and the symptoms of morphia mania may be developed. Paraldehyde in drachm doses may be tried, or urethane in twenty to thirty grain doses ; but though useful as hypnotics, they are of little use to relieve pain.* Locally, benefit may be derived from the use of the constant current applied over the inguinal region, 10 to 15 cells of Leclanche's battery (see page 146) applied daily ; pigment of iodine with belladonna ; a combination of chloroform (3iv.), extract of belladonna (3ii.), tincture of aconite (3iv.), camphor (3ii.), mastich (3iii.), rectified spirit (3i.), laid on with a brush over both ovaries ; vesication over the ovary with a little chloroform applied on a watch-glass. But in every case of so-called 'neuralgic' dysmenorrhœa, we must seek farther than the situation of the local manifestation for the cause of the pain. In the intervals between the periods, the closest attention must be paid to the general management of the case ; any constitutional defect has to be rectified ; tonics should be given, such as quinine, arsenic, bark, mineral acids, strychnine or nux vomica, the salts of zinc ; chalybeates if the patient be anæmic ; salines and mineral aperient waters if the tendency be to plethora. *The hysterical temperament* has to be met by such remedies as the bromides, in combination with valerian, assafoetida, or galbanum. Much more may be achieved by correcting errors of diet and the abuse of stimulants, attention to exercise, and by giving the mind healthful occupation, with such agreeable outdoor recreation as cir-

* Sulphonal is another valuable hypnotic, and in hysterical cases, as a rule, produces sleep (see page 156).

circumstances will permit.* It is in such cases before all others, unless they are absolutely demanded by some local condition, that we should discountenance vaginal examinations, speculum introductions, uterine manipulations. If there be in the unmarried girl a leucorrhœal discharge during the intervals between the periods, in a large proportion of cases it will disappear with appropriate constitutional treatment, aided by the vaginal douche, and some such astringent or alkali added as borax, alum, sulphocarbolate of zinc, carbonate of soda or permanganate of potash. If it should not do so, or that in the first instance, from the severity of the symptoms or their persistence, we are suspicious of local disease or abnormality, an examination is justified; but I repeat that such a step is not to be unnecessarily advised or uselessly persisted in.

The same remark applies to those cases of married women, now found floating about in such numbers, who have been to this doctor and that, who flippantly detail all the therapeutic means known for the cure of sterility and dysmenorrhœa, and appear to have exhausted all the resources of imagination and art. The womb has been 'slit,' 'cut,' 'stretched,' 'replaced,' 'depleted,' not by one medical adviser, but by two or three; yet they are none the better but infinitely the worse, morally, mentally, and physically, for all this ingenious exercise of manipulative skill.†

To restrain a woman from healthful intercourse, with proper intervals of rest, while she is made the victim of exhaustive vaginal explorations and pessary adjustments, appears to me to have in the practice neither reason nor justice. Erotic tendencies are sustained, and the whims and fancies of hysteria are encouraged.

Plethora.—Here, if we find that there is a plethoric state

* See Weir Mitchell's 'Rest Cure.'

† See Chapter on Electro-Therapeutics, and treatment by Faradisation.

of the system, a few leeches over the ovaries, or about the anus, shortly before the period, and depletion of the cervix, will be indicated. When we can so cleanly, quickly, and efficiently deplete the uterus with the uterine lancet, we rarely need require to apply leeches to the womb itself. Every purpose can be served by puncturing. In these plethoric cases we derive benefit from salines, the various saline waters, occasional aperients, close attention to diet and exercise. Iron has to be carefully avoided. Digitalis,* with bromide and iodide of potassium, is a useful combination.

In congestive cases I have found benefit from the administration of a pill containing lupuline, ergotine, extract of cannabis, of each gr. i., taken three times daily, alternating these doses with the bromide of potassium and chloral mixture. In these obstinate cases we must be particularly careful in the use of stimulants. It is far better to insist on the total relinquishment of all alcoholic drinks. If the patient cannot be induced to abandon stimulants, we had better recommend some light wine, as claret, hock or sauterne. The local means to combat dysmenorrhœa will be determined according to the state of the uterus with which, on examination, we find it associated. There may be a version or flexion requiring rectification, and the application of a suitable pessary. The canal of the cervix may be contracted, necessitating the use of a stem-pessary and the dilatation of the canal with the uterine bougies. We can in a few days, commencing with the bougie of 11 millimetres, increase to 30 millimetres. If the stenosis be extreme, and the cervix conical, the best course will be to prepare our patient for the division of the cervix, and to perform this operation about ten days after the menstrual period has ceased. After

* The tinctures of convallaria and strophanthus with many patients may be substituted for that of digitalis with benefit.

division, we use the glass stem of Sims, or one of the intra-uterine stems of Greenhalgh (Figs. 78, *a b*), or the galvanic stem-pessary can be inserted in cases of congestion with scanty flow. Inflammatory states of the uterus, catarrhal, cervicitis, and endometritis, should they be present, must be treated. Should any polypus block the passage, or a uterine fibroid obstruct the flow, each has to be specially dealt with. If the woman's life is rendered miserable by recurrent attacks of pain and intolerable suffering, especially if a growing fibroid implicates the canal, and other means have been

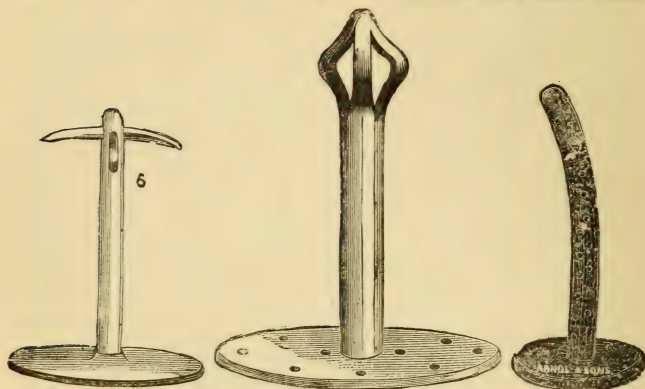


FIG. 78.

FIG. 78a.

FIG. 78b.

Soft Rubber and Vulcanite Stems of Greenhalgh (Arnold).

exhausted without any benefit, we should not hesitate to advise the operation either of Battey or Lawson Tait, placing fairly the exact risks of the operation before our patient.

In those cases of *ovarian dysmenorrhœa* in which the pain precedes the menstrual flow, and is characteristically ovarian, attended by sensitiveness and fulness in the ovary at either side—a fulness which can generally be felt through the vaginal roof or rectum—leeches applied either in the region of the ovaries or near the anus, vesication, warm sit-

baths, full doses of bromide of potassium or ammonium, are the best means of obtaining relief.*

I have seen some splendid results in these pitiable cases of chronic ovarian excitement, with various neurotic troubles—insomnia, loss of appetite, wasting, morbid fancies, and numerous reflex pains—from Dr. Weir Mitchell's plan.† The principles of his treatment are : 1. Rest and seclusion of patient. This includes the exclusion of officious, meddling, injudicious and over-sympathetic friends ; the assistance of an intelligent, refined, firm, judicious, and neat nurse and companion. If there be retroversion of the uterus, the patient is kept as much as possible in the prone or face position. This rest treatment must be continued for some weeks. 2. Change of diet. This consists in feeding the patient with a light but nutritious and moderately stimulating diet, much in excess of the demand necessitated by the daily waste—principally milk at repeated intervals ; soups ; malt preparations ('Ferrated Maltine' will be found an admirable remedy) ; some wine, such as burgundy, hock, dry champagne, and other generous diet. 3. The administration of iron. 4. The use of massage and electricity. A skilled rubber should practise the massage. This kneading of the skin and muscle of the entire body is practised for the space of half an hour to an hour daily. Cocoanut oil is employed to assist the massage. The constant-current battery is used, or a mild Faradaic current applied over Ziemssen's points. Fourthly, this treatment may be supplemented after a time by the use every morning of a tepid spinal douche, while the patient sits on a stool in a bath-tub with her feet in warm water ; the water poured over the back has, at first, a temperature of 80°, and is reduced one degree daily, until it is brought to the ordinary temperature. Suitable friction follows the douche, the patient dressing rapidly and taking

* See Chapter on 'Ovaritis.'

† See Chapter on 'Massage.'

a brisk walk after some food, but it should not be of sufficient length to exhaust the strength, or tire the patient.

TRUE MEMBRANOUS DYSMENORRŒA

Is not a common affection. Here we have exfoliation of the uterine mucous membrane, either in the form of shreds, or sometimes as a complete cast of the uterine cavity in which are the orifices of the Fallopian tubes or os uteri. Some years since I had a lady under my care who suffered most severely at the menstrual periods, and had always done so. Before marriage, however, she had passed these casts of the uterus, and this continued for the first year after marriage. The little membranous exfoliation preserved completely the form of the uterine cavity. The affection yielded in time to treatment; she became pregnant and has now a family. This form of dysmenorrhœa is not necessarily related to conception, and may occur in virgins; it does not of necessity cause sterility, though as long as the affection persists it predisposes to this condition. Microscopically the membranous layer is found to be composed of connective-tissue, glands, and deciduous cells. In the two cases recently reported by Dr. Mansell-Moulin the structure of the membrane was shown to consist of 'large fusiform and rounded cells, many of which appeared to have two nuclei, as if undergoing proliferation, containing utricular glands lined with columnar epithelium of large size, and numerous bloodvessels of different calibre.*' The passage of the membrane is not always accompanied by pain. There is frequently associated with this form of dysmenorrhœa a degree of chronic inflammation of the uterus. We must not confound this membranous cast with an exfoliation or a blood-coagulum. The microscope and a little care will prevent this error. Hitherto neither the abortive evolution

* British Gynecological Society's Transactions, May 12, 1886.

theory of Dr. John Williams, nor any other, satisfactorily explains the causation of this affection. If we hope to alter the character of the menstrual act radically, we must alter the nature of the uterine mucous membrane. Inflammatory complications must be subdued if they exist. The interior of the uterus should be treated during the intervals between the periods by such remedies as fused nitrate of silver or sulphate of zinc points, nitric acid, iodine, carbolic acid. If the pain be severe during the separation of the membrane, chloral and bromides, opiate suppositories, belladonna and morphia, vaginal pessaries, morphia injected subcutaneously, will give relief. It is better, while the patient is under treatment, to forbid coitus. She can in the intervals wear a galvanic stem-pessary, and galvanism may be used to the interior of the uterus in the manner already indicated.

Electrolysis in Dysmenorrhœa.—Dilatation by electrolysis has answered well in several reported cases. A positive sponge is placed over the abdomen, and the negative electroide is introduced into the uterus through the internal os. The sitting lasts from ten to twenty minutes (Fry). Six small Leclanché cells are used.

General Therapeutics.—I have before referred to the remedies *aletris*, *pulsatilla*, and *oxide of manganese*. I have given with great benefit antipyrin in those cases of an undoubtedly neuralgic type; especially has it proved of service when there have been associated neuralgic pains in the sides, groin, and legs. The doses I have given of it have been from 7-10 grains repeated every few hours.

In rheumatic dysmenorrhœa the *salicylate of soda* in combination with *guaiacum* may be tried.

Oxalate of Cerium has been recommended by Chambers. He gives it in six-grain doses to healthy women who suffer before the period and during its onset.

Sulphonal.—I have given sulphonal as a hypnotic in several cases of dysmenorrhœa. In doses of 25 to 30 grains it has generally given several hours of good sleep. It should be administered a few hours before sleep is desired. It may be given suspended in a little compound powder of tragacanth and the compound almond mixture.

CHAPTER VIII

DISORDERS OF MENSTRUATION (*continued*)—MENORRHAGIA, METRORRHAGIA, LEUCORRHŒA.

Hæmorrhage.—I have already given a brief classification of hæmorrhage, whether as a simple exaggerated menstrual flow, or that which occurs independently of menstruation, due either to disease elsewhere or having a strictly local origin. In dealing with any case of uterine hæmorrhage some broad practical rules have to be remembered. I should say in their relative order of importance they are as follows :

1. Never to neglect or trifle with, by simple palliative measures, an unusual, continuous, or exaggerated loss of blood from the uterus.
2. Always to remember that the hæmorrhage is but the sign of something abnormal elsewhere, or of disease in the uterus itself.
3. Our first anxiety should be directed to the *cause* of the hæmorrhage.
4. *In case of doubt make a careful vaginal examination ; and should this not explain the cause, and if the hæmorrhage continues, dilate the uterus and explore its cavity.*
5. Once the cervix is dilated, it is better to maintain a certain degree of dilatation, as long as the discharge of blood continues.
6. The local conditions most frequently met with which cause hæmorrhage are : Fibroid tumours, subinvolu-

tion, endometritis and cervicitis, erosion of the os and cervix externally, granular states, malignant disease, polypus, uterine congestion associated with flexion, and ovarian congestion.

Our treatment of hæmorrhage may be divided under two heads: (1) The correction of any general cause, such as organic disease in the heart, lungs, liver, spleen, kidney; or the control of the discharge during the exanthemata, in purpuric states, and at the climacteric period, or after pro-



Can douche as made
for author by Messrs.
Maw.

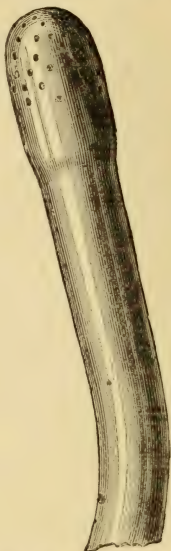


FIG. 80.—Hayes' tube.

longed lactation. (2) The removal of the local cause by operation or other local treatment.

It is not my intention to enter into the different means of checking hæmorrhage, as this is necessarily done when detailing the treatment of the various morbid conditions

that give rise to it. But it may be well to tabulate the most useful and efficacious hæmostatics and astringents we possess:

1. *Heat*.—By the vaginal douche and water at 110° to 120°.

The can (Fig. 79), filled with water at the required temperature, is hung on a nail or a hook of a bed-curtain ring (or placed on the top of a wardrobe) about eight feet high. The patient (in the horizontal position, if possible) inserts the tube, directing it backwards into the vagina, and by turning the cock the water flows. The can should be larger than those usually sold, and contain two quarts. When possible, it is preferable to have the assistance of an attendant or nurse. Tincture of iodine, Kreuznach liquor, Woodhall Spa water, boracic acid, bicarbonate of soda, borax, Condyl's fluid, may be added to the water.

2. *Cold*.—Vaginal douche; ice-bag in vagina; double tube or cold tampon in vagina; ice-bag or bladder over pubes. Cold always to be used with caution where there is great debility or tendency to collapse—Leiter's tubes placed over the uterus.

3. *Tampon*.—Sponge-tent inserted into cervix—sponge acts both as a dilator and plug; vaginal plug.

Vaginal Plug.—In many cases of hæmorrhage from the cervical neck, after operation on the cervix, in granular states, and after depletion, we can make a convenient and efficient plug thus. A roll of salicylic acid wool is tied in the centre with a string, and spread out umbrella-shape; several smaller pieces of wool are at hand. We may moisten the surface of the wool with a little perchloride or the subsulphate of iron solution, extract of hamamelis, glycerine and carbolic acid, glycerine of tannin, or glycerine and permanganate of potash solution. A large, but not lengthy, tubular speculum is introduced, or, better still, Sims's speculum. The medicated wool with the string attached is now pressed home well against the os—it is

attached is now pressed home well against the os—it is better first to dry the part of any blood—and following it the smaller pieces of wool are pushed in, until the upper part of the vagina is well filled. I always remove such a plug after twelve hours. If we want more securely to fill the vagina we may use strips of lint, a piece of tape being tied to those first introduced. The lint may be moistened with carbolic, or permanganate of potash, solution. Two rules are to be always borne in mind in regard to plugging—(a) Never look on plugging save as a temporary expedient for the control of hæmorrhage; (b) Never permit a plug to remain for a longer period than twenty-four hours at the outside in the vaginal cavity, and always disinfect and cleanse the vagina after the removal of the plug and before a second is inserted.

4. *Local Therapeutic Agents.*—Alum, in tampon or injection; persalts of iron; perchloride of iron, either as the liquor, or, what is far preferable, the solution in water of the solid salt, made any strength (gr. xxx.— \bar{z} i. ad \bar{z} i.); sulphate of iron solution (\bar{z} ss. ad \bar{z} i., Sims); ferro-alumen; gallic acid; tannic acid; matico in injection; hamamelis. The interior of the uterus may be wiped with any of these agents by means of the uterine probe or the vagina tamponer.*

5. *General Therapeutic Remedies.*—Ergot; ergotine, or sclerotie acid, given subcutaneously; ergotine, with lupuline and quinine, given in pill; tincture of perchloride of iron; infusion of matico, alone or in combination with perchloride of iron, gallic acid, tincture of digitalis, or extract of hamamelis; digitalis, in combination with ergotine, dried sulphate of iron and quinine; gallic acid (gr. xv. doses), with infusion of matico and liquid extract of ergot, or the ammoniated solution of ergot (Allen and Hanbury); quinine, with aromatic sulphuric acid, or dilute sulphuric acid.

* Vaginal tampons of glycerine, and liquid extract of hydrastis with tincture of matico, are very efficacious.

The general management of the patient suffering from menorrhagia will, in great measure, depend on the constitutional state or vice on which it is attendant. General or ovarian excitement must be controlled by bromides, here well given, with digitalis; in atonic states, strychnine may be administered in combination with quinine and iron; if the debility induces hysteria, the bromides with valerian (ammoniated tincture and infusion); in plethoric conditions, at the time of the menopause, and if there be any hepatic congestion, saline purgatives, bitter waters, vegetable cholagogues (podophyllin, iridin, euonymin), alternated occasionally with a mild mercurial, as a few grains of calomel or grey-powder. If loss of blood has induced an anæmic or chlorotic state, iron should be judiciously administered in any of the forms already mentioned; the dialyzed preparation of Squire, Fellow's, Easton's, or Dusart's syrups, the perchloride, tincture and the chloroxide being excellent forms to administer it in.*

There is little to add in regard to the treatment of menorrhagia beyond the recommendation contained in the previous edition of this work. Hydrastis has been more largely employed since I then recommended its use, and I have been constantly administering it both locally and internally for uterine hæmorrhage. It is a most valuable addition to obstetric pharmacology. I have given it also in combination with 'celerina' and aletris, with excellent effect. Especially will hydrastis be found of value in the hæmorrhages of the menopause. Here it may be given with digitalis or strophanthus. In both these latter vascular tonics we have valuable agents for the control of uterine hæmorrhage. Many years since (1866) I wrote a communication for the *Dublin Journal of Medical Science*, advocating the use of digitalis in uterine hæmorrhages. I have of late substituted strophanthus, but I cannot say that it is as efficient as digitalis. It is especially in cases of uterine hæmorrhage, associated with cardiac functional and organic changes, that both digitalis and strophanthus are of service. The muriate of hydrastia has been given (Hale) successfully in doses of $\frac{1}{16}$ —gr. i. three times in the day. It can be administered in a pill, and for some this is an advantage. Faradisation and electrolysis have been

* For the treatment of menorrhagia by Faradisation, see Chapter on Gynecological Electro-Therapeutics.

largely used in the treatment of menorrhagia, in hyperplastic conditions of the uterus, for fibrosis and fibroid growths. But whatever treatment we pursue for uterine hæmorrhage the golden rule should be to first ascertain by careful examination, and, if necessary, exploration of the uterine cavity, the source and cause of the loss of blood.*

LEUCORRŒA.

Of all the terms used in gynecology, this one—leucorrhœa—is employed in the loosest and most misleading manner, both by student and practitioner. By leucorrhœa we understand generally, in practice, what women call ‘the whites.’ If we restrict the use of the term to simple exaggeration of the normal secretions, whether coming from uterus, vagina, or vulva, or to some catarrhal state of the mucous membrane, it would be, perhaps, correct to speak of uterine (corporeal and cervical), vaginal and vulvar leucorrhœa. But it must be remembered that simple excess of the normal physiological secretion rarely proceeds for a length of time without producing pathological changes in the tissues, which we must keep quite distinct from a slight perversion or simple exaggeration of secretion. Such a correctly styled ‘leucorrhœal flow’ we meet with, typically, in pregnancy, in young girls with debilitated constitutions, and in those suffering from anæmia. To mix up the idea of any morbid secretion, the result of pathological changes in the tissues, with ordinary leucorrhœa, is simply to lead the practitioner into errors both of diagnosis and treatment. On the one hand, he may force unnecessary examinations, over-treat by local measures, apply topical agents to healthful structures, raise unnecessary alarm; or, on the other, he may be tempted to pursue an expectant plan of treatment, hoping in vain that he can control a discharge which has its

* Burroughs and Welcome have prepared, at my suggestion, tabloids containing ergotine, muriate of hydrastia, and tannate of cannabin, for use in menorrhagia.

source in some diseased state of the uterus, by palliative measures and general constitutional remedies. I shall then confine my observations to leucorrhœal discharges proper.

I have already, in the table of discharges, epitomized the distinctive features of the secretions poured from the uterus—body or cervix, the vagina and vulva. In some cases simple leucorrhœal discharge is very profuse; perhaps it altogether supplants the normal menstrual function. This form of discharge we are frequently consulted for in connection with either amenorrhœa or some irregularity of the menstrual flow, and its accompanying anæmic or chlorotic condition. We also meet with it as a symptom in gouty, rheumatic, syphilitic, or tubercular constitutions. In leuco-phlegmatic children, occasionally—apart from the discharge of vaginitis—after the exanthemata, or associated with worms, and during dentition, we find a true leucorrhœal discharge. In young anæmic or chlorotic girls, a vaginal examination is, as a rule, not necessary.* Only when, from other symptoms, we are led to suspect some inflammatory condition, or a version or flexion, is a digital examination called for. As a rule, in a married woman, it is the safest course to examine when we are told (unless she is pregnant) that she ‘suffers from the whites.’

Our treatment has to be determined by the general aspects of the case. The different modes of restoring the general health, by chalybeates, tonics, attention to diet, and exercise, already pointed out in the treatment of amenorrhœa, must be resorted to.

As to local measures, we may do much by the vaginal douche, astringent and alkaline injections, more especially those of alum, sulphate of zinc, sulpho-carbolate of zinc, borate of soda. In children we must pay attention to the general health, and give some alterative, as small doses of rhubarb and grey-powder, or quinine and grey-powder; the

* See Note, following page.

various chalybeates—a course of syrup of iodide of iron, or Parrish's food ; regulate the child's diet, and avoid all trash, such as sweets, cakes, or fruit ; let the child have proper baths, sea-bathing, and warm underclothing.

Simple uncomplicated leucorrhœa rarely produces irritation of the vulva, or any pruritus or eczematous inflammation, while we frequently find such conditions attendant upon vaginitis and discharges of a purulent or acrid nature, both from the uterus and vagina. (See 'Vaginitis.') In children, however, scrupulous cleanliness should be enforced, and the vulvar orifice inspected regularly, lest there be any irritation consequent upon the discharge.

NOTE.—While much careful discrimination has to be exercised, there is such a contingency as the following : A very intelligent young practitioner brought to me an unmarried girl (accompanied by a married sister), suffering from amenorrhœa, with attendant anæmia, gastric symptoms, leucorrhœa, flatulence, etc. She had taken various remedies without avail. No examination had been made. I hinted at the possibility of pregnancy, but was assured it was out of the question. The chance of a flexion or version being present suggested a digital examination. I was surprised to find the girl far advanced in pregnancy. Insisting, then, on making a complete examination, we were satisfied she was at least in the eighth month of pregnancy. She had so laced and dressed as to deceive all about her, including her mother, married sister and physician. The story tells its own moral. More recently I was asked to see a lady who asserted she never had, from his inability, complete intercourse with her husband. She complained of her general health being impaired as a consequence, and of the presence of a tumour. On examination, I found a yielding but unruptured hymen. She was exceedingly nervous lest I should destroy the proof, by examination, of the incomplete nature of the conjugal act. On placing my hand on her abdomen my suspicions were aroused. I examined her breasts, and found in them milk. She insisted she was not pregnant. I could not hear the fœtal heart. But despite the presence of the hymen, I was confident of the pregnancy, and so gave my opinion to her solicitor. She was in due course delivered of a living and healthy child.

CHAPTER IX.

UTERINE DISPLACEMENTS—ANTEVERSION AND ANTE- FLEXION.

PRINCIPAL PREDISPOSING CAUSES OF UTERINE DISPLACE- MENTS.

General debility inducing relaxation of the uterine supports.

Pregnancy and labour—ruptured perinæum—laceration of cervix.

Pelvic adhesions—peritonitis and cellulitis.

Pelvic effusions.

Vaginal prolapse.

Violent muscular efforts.

Congested states of the uterus.

Distension of rectum or bladder.

Fibroid tumours of uterus.

Abdominal tumours—collections of fluid.

Subinvolution—areolar hyperplasia.

Imprudent habits of dress—tight-lacing—too tight binding after labour.

Sedentary occupations.

IMPORTANT DISPLACEMENTS.

Anteversion and antelexion.

Retroversion and retroflexion.

Prolapse.

Ascent.

Inversion.

SOME RESULTS, DIRECT AND INDIRECT, OF UTERINE
VERSIONS AND FLEXIONS.

Dyspareunia (Painful Coitus).

Amenorrhœa.

Dysmenorrhœa.

Menorrhagia and Metrorrhagia.

Uterine congestion.

Uterine hyperplasia.

Uterine fibroids.

Stenosis and sterility.

Uterine prolapse and vaginal inversion.

Vesical irritation—incontinence—retention.

Rectal irritation—constipation—hæmorrhoids.

Perimetritis.

Parametritis.

Pelvic hæmatocele.

Locomotor troubles.

Sacral and lumbar pain—neuralgia.

Various reflex pains.

Abortion.

Ovarian congestion—ovaritis—salpyngitis.

ANTEVERSION.

The uterus lies, in the normal condition, slightly anteverted in the pelvic cavity (Fig. 2). At times, owing to pressure from above, or posteriorly, or from yielding of its supports, above, below, or at the side, or from contractions or adhesions which drag on it anteriorly, the fundus uteri is thrown further forwards in the pelvis; and ultimately it is so far displaced from its proper relation to the pelvic brim that it rests against the bladder, while the os uteri is carried back towards the pouch of Douglas. As we would suspect, from the normal inclination of the uterus and the influences

which operate in producing the first exaggeration of it, we find this the most frequent of uterine displacements. So, where it is met with in its worst form, it is perhaps the most distressing to the patient, and the most difficult to relieve.

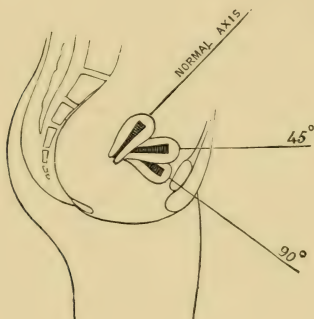


FIG. 81.—Degrees of Anteversion.

Any of the many affections I have just grouped as consequences of displacements may result from extreme anteversion. Those that are found as the most frequent attendants are—amenorrhœa and dysmenorrhœa, uterine congestion, uterine fibroid, stenosis, sterility, vesical and rectal distress, uterine prolapse, locomotor symptoms, sacral and lumbar pains, ovarian congestion, and ovaritis. *It is a safe maxim in gynecological practice to look outside the bladder itself for the cause in any case where there is difficulty before or during the act of micturition, or evidence of retention of urine.* We shall very frequently find it in an anteverted or retroverted uterus. In like manner, when there is tenesmus, or a sense of pressure in the rectum and general rectal distress with the passage of

fæces which are in form suggestive of stricture, we may discover the cause in uterine displacement.

Diagnosis.—If we suspect the malposition there is no difficulty in quickly verifying our suspicions. We might, if careless, confound both anteversion and anteflexion with a fibroid of the uterus, or a vesical tumour; but we are more likely to overlook the pathological condition attendant upon, and which has frequently preceded, the version—as, for example, an intramural fibroid, subinvolution of the uterus, simple hypertrophy, an intra-uterine polypus, adhesions, metritis, or perimetritis. While we may therefore prove satisfactorily that the uterus is anteverted or anteflexed, we must, by careful measurement with the sound, and searching digital and bimanual examinations in the manner previously described, exclude any possibility of such complications being present. By digital examination, the absence of the cervix from the fornix of the vagina, its position posteriorly in the sacral hollow, and the detection anteriorly of the hard fundus, less so in the dorsal decubitus, will show that the uterus is anteverted. By abdomino-vaginal examination we can get the entire organ between our hands, and satisfy ourselves that this mass which is felt anteriorly is the fundus uteri. If there is still a doubt or suspicion of other complications, it may be necessary to complete the diagnosis with the sound. I shall, for the last time, repeat here the obstetric axiom—Do not take the uterine sound in hand in any case of suspected pregnancy. Most necessary is it to recollect this rule in the case of an enlarged and anteverted uterus. Should the possibility of pregnancy be excluded, more especially if we desire to use the sound both for a diagnostic and therapeutic purpose; we may pass it. This, at times, is not such an easy operation. It may be difficult, even when the sound is well curved, to

get it into the os uteri in extreme anteversion. Some old flexion may impede its progress ; so may also a uterine growth. The important lesson we thus learn is, to use no force in the attempt. By carrying the handle well back, or by giving the instrument various degrees of curvature, we will succeed by gentleness and not by force.

Treatment.—In making our diagnosis we determine the degree of mobility of the uterus, or the extent to which it is fixed in the pelvis, or bound down by adhesions. We can, with the fingers of the right hand carried deeply behind the pubes, press upwards and backwards the fundus, while, at the same time, we steady the cervix with a finger of the left hand in the vagina, and draw it forwards. Should the uterus be so fixed that we cannot succeed in this manœuvre, the sound may be tried ; but, unfortunately, if we fail by the digital method, it is seldom that we effect much greater permanent improvement in position by the sound. Recollecting the etiology of anteversion, it is obvious that the mere reposition of the uterus is frequently the least part of the practitioner's duty. The general health of the woman must be carefully attended to, and her secretions regulated ; congested and hypertrophic conditions of the uterus, contractions of the cervical canal, any complicating tumour or effusion, ought, as far as possible, to be rectified, and any abdominal pressure relieved. In the meantime, we endeavour to raise the fundus uteri, and retain it in position by a pessary.

It must be clearly understood that these remarks refer to greater degrees of this form of uterine displacement. I quite agree with the opinions expressed by Dr. Matthews Duncan in his lecture on 'Minor Displacements,' especially where he says, that were some modern doctrines well-founded, 'life for women would not be worth the having,

for the position of no womb satisfies those who entertain them, and treatment has as its ordinary consequence failure and disappointment, and sometimes grave disaster.' It is almost too ridiculous to see the array of pessaries, the fruit of not over-much mechanical ingenuity, now figured in every instrument-maker's catalogue. Truly, in obstetric art, this is 'the pessary age.' When everyday experience teaches us that any and every kind of pessary, in a very large percentage of cases, fails to give relief, and often only creates distress; when the truth of the statement cannot be controverted, that 'thousands of blooming, happy, fertile women have displacements;'* when we consider that we are frequently creating an unhealthy state rather than relieving it—we will hesitate before we talk to women of the womb being 'displaced,' and still more so before we place in the vagina a pessary of any kind. It is deplorable the extent to which the charlatanism of pessary-adjusters has degraded practice, and opened the door for every form of inventive humbug. I have on several occasions taken out a pessary without the patient's being made aware that I have done so, and until her next visit she was none the wiser of its removal.

I take the liberty here of quoting Dr. Duncan's advice: 'Think twice before beginning the often baneful practice of using any instrument, teaching a woman to depend on what, if not positively useful, is positively injurious, though perhaps not much. Many a woman has suffered from, and many a woman has died of, a pessary; but most pessaries, as I find them, are nearly innocuous for evil or for good.' Writing as far back as 1876, Dr. Gaillard Thomas, referring to the general use of pessaries, says, 'Were I asked at the present moment whether I believed that in the

* See page 173.

aggregate they accomplished more good or evil, I should be forced to give a doubtful reply.' He goes on to attribute the injurious consequences, not so much to the instruments themselves as to their mode of application. I do not think, since the above was written, the mischief has lessened.

I confess to having always felt a feeling closely akin to shame, when, in lecturing on displacements, I came to exhibit to my class, and teach the students, the uses of the heterogeneous array of pessaries collected for demonstration. The

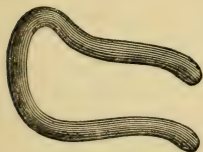


FIG. 82.—Open Hodge.

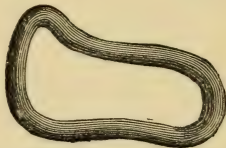


FIG. 83.—Vulcanite Hodge.

student has an idea that it is as necessary for him to remember the name of the inventor and the mode of application of every pessary figured in some instrument-maker's catalogue, as it is to master the most important fact in the pathology of displacements; and from the 'examination' point of view he is not far wrong.* Many even of those still sold are useful for no purpose that I know of, save to be handed down through some museum to posterity as interesting relics of this pessary period. Having thus briefly expressed my belief that the rash or indiscriminate use of pessaries is to be strongly condemned, I desire on the other hand, not to be understood as undervaluing the assistance in treatment

* See page 173.

we obtain through the well-adjusted pessary.* In all forms of displacement where its employment is clearly indicated it generally gives material relief. I know few steps in surgery attended with such obvious and immediate benefit and comfort to a patient, as the restoration of a retroverted uterus to its normal position, and its support and retention by a well-fitting Hodge's or Fowler's pessary. In the same manner, in varying degrees of descent of the uterus, which more or less



FIG. 84.—Hodge's Rubber Pessary. FIG. 85.—Metal (Smith-Hodge). accompany all versions and flexions, with an extemporized Hodge suited to the case, or one of Dr. Greenhalgh's modifications (Fig. 86), we immediately secure that sense of support, and prevent the bearing-down feeling and associated pain

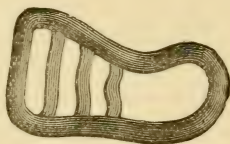


FIG. 86.—Greenhalgh's modification.

which are so distressing. Treatment can be continued while the pessary is worn; and by local means and general treatment the uterus and its supports can be so restored to a healthy state as to do away with the necessity for any

* 'Notwithstanding all this,' says Marion Sims, 'I advocate and daily use pessaries in one form or other; because, if I did not, I should

mechanical appliance. In graver degrees of displacement, proper mechanical support is, as a rule, an indispensable part of the treatment, and often the only part from which the patient will derive any benefit. Space would not permit me to refer specially to many of the different kinds of pessary with which gynecologists are familiar; many of which have been 'tried and found wanting' in practice. I shall, therefore, only refer to some of the most generally useful and best known pessaries now used for treating the different forms of displacements.

PESSARIES.

It has been remarked that the observations in the text on the *abuse* of pessaries are hardly in keeping with the figuring and description of several varieties of these. But it must be remembered that this manual is largely used by students as a text-book, and that such a description is required for purposes of examination, as students are expected by different examiners to be familiar with the appearance and mode of application of a variety of supports. But I have been most careful to point out the conditions under which pessaries are indicated, and those for which I have, individually, a preference.

I would add, that my quotation of the opinion of Dr. Matthews Duncan applies more especially to some cases of anteversion and ante flexion than to retroversion and retroflexion. I do not believe that any woman who suffers from marked retroversion of the womb can be a 'blooming and healthy' woman. And, further, I think it is our duty, as gynecologists, to use every available and justifiable means to relieve her of an affection which in the great majority of cases is curable.

There are some safe rules to observe in regard to the use of pessaries in general practice:

1. Always make a careful digital exploration (the rectum

turn away a multitude of cases without doing anything at all for their relief. We should always do without them if possible; but, if it be impossible, then it is the part of wisdom to resort to such appliances as will best answer the indications of the individual case.'—'Uterine Surgery,' page 264.

and bladder being empty) of the vagina and uterus before application.

2. In anteversion and ante flexion, if there be uterine congestion, sensitiveness, stenosis, or enlargement, avoid the continuous use of a pessary until these conditions be removed ; trust meantime to dilatation of the cervical canal, periodical reposition with the sound, and dorsal decubitus, with general treatment.

3. Do not introduce a pessary until thoroughly satisfied of reposition of the uterus.

4. Whenever possible, mould and fashion, from a celluloid or vulcanite ring, pliable metal, or the soft rubber and wire Hodge, the pessary you require, and regulate its size and shape, or lever-power, according to the degree of version or flexion, the tightness of the vaginal roof, and the capacity and muscular tone of the vagina.

5. Always teach the patient how to remove a pessary, if there is any pain or discomfort from its use. In many instances it is equally easy to teach her how to reinsert it ; but, as a rule, this should be done by the practitioner.

6. Let the patient be seen rather frequently at first, so as to ensure comfort in the use of the appliance, to detect any accidental displacement, and to watch for any vaginal irritation ; all patients wearing pessaries should be kept under observation, periodical cleansing of the vagina with Condyl's solution prescribed, and strict attention paid to the bladder and rectum. (It is well, in anteversion, to encourage the patient to retain the urine.) Always, when possible, contrive or select a pessary that does not interfere with coitus.

I do not believe that any verbal description can teach the proper selection or the correct adjustment of a pessary. This

must be learned in the hospital ward, or in private practice; best of all in the extern obstetric department of a hospital. In anteversion, our object is to raise the fundus, and place such a support anteriorly as will prevent it relapsing into its old position. In many cases of anteversion sufficient support for the uterus can be obtained from a Hodge, moulded to suit the case.* The celluloid rings made by Messrs. Maw, of different sizes, can be readily converted, by dipping them in hot water, into any variety of lever support. We can rapidly shape a Hodge, with the arms of the lever of any length or shape we wish. With these rings, or with the

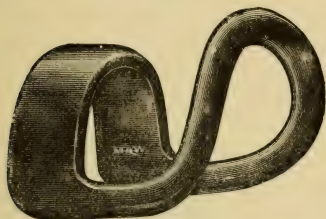


FIG. 87.—Galabin's Pessary.



FIG. 88.—Hewitt's Pessary.

rubber rings, we are enabled to adapt, for the case before us at the time, a pessary of any size or shape we think applicable to it. Dr. Galabin's pessary is a useful one. It is made of vulcanite (Fig. 87). The anterior limb of Hodge 'is replaced by a broad arch directed upwards, and nearly square at its summit.' 'In introducing the instrument, it is at first passed entirely within the vulva, with the upper limb in front of the cervix; the index-finger is then passed through it, and hooks the upper limb back over the cervix

* It is difficult to get a good celluloid ring. Those generally made are useless, they are so soft and weak. The flesh-coloured ring is to be preferred.

and into the posterior cul-de-sac. It is well adapted for married women, and does not interfere with coitus.*

Figs. 88, 89 show Dr. Grailly Hewitt's cradle-pessary, and its relation to the uterus when applied. We introduce it by pushing in the large ring of the pessary through the vulva, pressing it steadily in an oblique manner upwards and backwards; the summit of the instrument is then carried into position in front of the uterus, its lower end being pushed gently upwards.

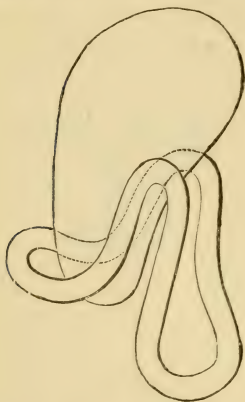


FIG. 89.—Hewitt's Cradle applied.

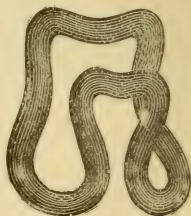


FIG. 90.—Blackbee's Pessary.

Fig. 90 shows the rubber pessary of Blackbee, which will be found easy of application and a useful pessary. It can be adapted both for anteversion and retroversion.

Thomas's anteversion pessary, with a movable lever, may be had in vulcanite, or the elastic modification of it in rubber. I prefer it made of the latter material.

Fig. 91 shows the pessary open. To introduce it the ends are brought together, and the pessary, thus closed, is carried

* I am afraid this is saying just a little too much for the support in many cases.

under the cervix, which falls behind the anterior movable bow, while the fundus falls upon it, and the posterior bow

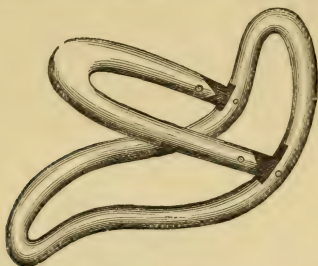


FIG. 91.—Thomas's Movable Lever.

lies behind the cervix. When the patient desires to remove the pessary, which she should be carefully taught to do, the index-finger is hooked into the lower end, and when traction is made, the bow falling back of itself, the appliance can be readily withdrawn. The improved anteversion pessary

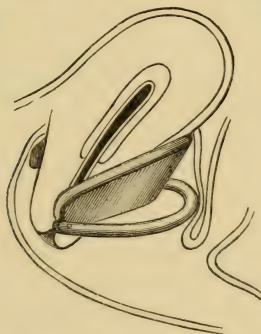


FIG. 92.—Thomas's Anteversion Pessary.

of Dr. Gaillard Thomas is shown in the figure (Thomas) as it lies in the vagina applied. I have given complete relief in some cases after reposition, by adopting a Fowler's pessary of the proper size. Though this pessary is more applicable

for retroversion, still it will be found, in both forms of displacement, a safe, easily applied, and useful pessary by the general practitioner (Fig. 93).*

When the pessary is in position, the neck of the uterus presents at the lower circular aperture, and the curved anterior portion, with the small opening for the finger to facilitate introduction and removal, lies in front of the uterus.

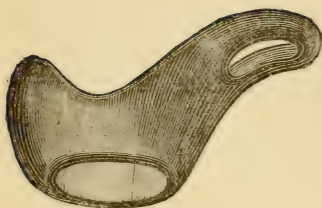


FIG. 93.—Fowler's Pessary.

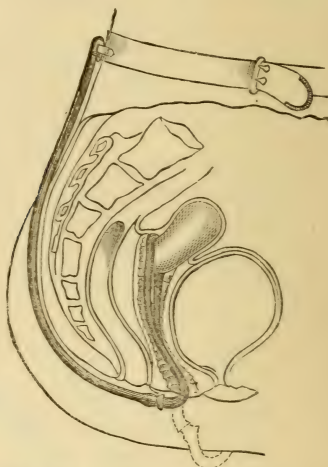


FIG. 94.—Cutter's Loop Pessary applied.

The loop and bulb pessaries of Cutter can be applied both for anteversion and retroversion (Fig. 94).

The plan of all these external supports is the same.

* A caution is necessary in regard to this and any hollow vulcanite pessary. Should any small crack or opening be made in the instrument, it becomes foul, and imprisons decomposing secretions. The principle of this pessary can be easily shown to the patient, and she may be taught how to remove and replace it. This is not possible with some women, and it should then be periodically removed by the surgeon and examined. The pessary as made by Messrs. Arnold is not open to this objection.

The lower portion of the pessary arches over the coccyx, and has attached to it an elastic cord connected with a waist-band. The stem may curve over the symphysis in a case of anteversion. The bulbs and bars of Cutter's pessary have been modified by Thomas. The bar may be made of rubber, and can be inflated (Fig. 96).

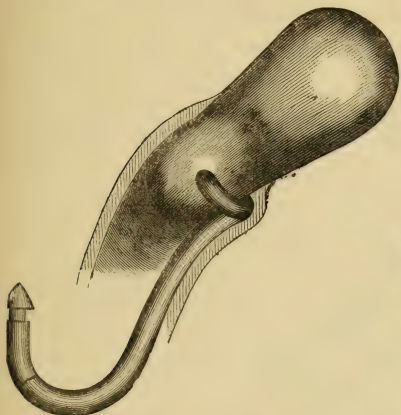


FIG. 95.—Cutter's T Stem applied.



FIG. 96.—Cutter's soft Pessary (modified by Thomas).

ANTEFLEXION.

This most troublesome and frequent displacement involves considerations altogether distinct from anteversion. Antelexion of the uterus may be either congenital or acquired. The body of the uterus is bent forwards over the cervix, and the axis of the cavity of the fundus uteri no longer forms a continuous and slightly curved canal with that of the cervix, but is placed at an angle, varying in degree according to the extent of the flexion. Or the cervix may be flexed forwards at various

angles (Gaillard Thomas), while the cavity of the fundus retains its normal axis ; or the flexion forwards may occur both in the body and neck of the uterus, an extreme degree of angular constriction at the isthmus uteri resulting.

As Goodell rightly remarks, the lesions anteversion and anteflexion blend into one another. There frequently has been a state of anteversion prior to the flexion. In primary anteflexion this displacement may not give much trouble until after marriage, when the increased stimulus to menstruation excites a more profuse menstrual discharge, and the obstruction to its flow caused by the flexion produces



FIG. 97.—Anteflexion of Uterus (Schroeder).

dysmenorrhœa. On the other hand, it may be accidentally discovered, and should always be remembered as a likely cause of severe dysmenorrhœa occurring with the earlier periods in very young girls.

Dr. Gaillard Thomas describes cervical and cervico-corporeal flexions as those most frequently met with in nulliparous women, while the corporeal displacement is that seen in multipara. My experience would lead me to say that in practice we meet much more frequently with the corporeal than the cervical flexion. It is in cases of primary or con-

genital antelexion that we frequently find other abnormal uterine developments—short or conical cervix, short anterior lip, small uterine opening.

Causation.—An acquired antelexion may be induced and promoted by almost any of the influences mentioned as tending to produce anteversion. I have already referred to the importance of a free circulation at the ‘axis of suspension’ (Barnes) of the uterus. Any obstruction here must lead to venous congestion, congestion to interstitial effusions, ‘hypergenesis of tissue’ (Thomas), and hypertrophy, and as a result, either morbid growths or secondary contractions are formed. In no situation should we more naturally expect these to occur than in the anterior wall of the uterine fundus. Increase of size demands larger arterial blood-supply, and, consequently, we have, not alone greater habitual venous congestion, but the periodical determination of blood at the menstrual period adds to the general uterine derangement, and any further obstruction at this time to the free flow of blood still further increases the evil. The cycle of changes may commence either in morbid processes promoting congestion and weight in the uterine wall, or in an interruption to the circulation at the ‘axis of suspension,’ with consequent alteration of tissue at this part, and these conditions may be both secondary to pathological extra-uterine states, such as tumours, adhesions, inflammatory effusions, a retro-hæmatocele, or pressure from the rectum posteriorly, or from the abdominal viscera above. Or the initiatory mischief may be traced to the ovary—ovarian, with consequent uterine congestion, inflammatory effusion in the broad ligaments, adhesions of the Fallopian tubes, occasional perimetritic attacks, with a consequent dragging on both the vagina and uterus.

Symptoms.—The symptoms depend to a great extent on the degree of flexion, the size of the body of the uterus, the

accompanying stenosis, the pressure on the bladder; or such complications as metritis, endometritis, and perimetritis. Sterility being a common consequence of ante flexion, it is frequently present, with many of its attendant ills. Here, in addition to the dysmenorrhœa, there is occasionally dyspareunia, an irritable and sensitive vulvar orifice and vagina, a sensitive and congested cervix, with pain on pressure in the posterior fornix of the vagina, caused by the swollen and sensitive ovary. The pressure on the bladder brings frequent desire to pass water, with difficulty of retention; there is constantly a sense of weight and pain when the patient stands or walks for any time, and neuralgic pains occur in various parts.

Diagnosis.—This, as a rule, with the exercise of any care, is not difficult. A digital examination detects the solid body of the uterus lying anteriorly, and the angle of flexion marked by the presence of a sulcus, beneath which the cervix lies in the axis of the vagina, if it is not drawn out of position by any adhesions or cicatricial contractions. Care must be exercised, if the flexed cervix is drawn anteriorly, not to mistake the displacement for a partial retroversion or retroflexion. The uterus, occasionally in ante flexion, lies low in the vagina; the process of descent proceeding at the same time as the forward displacement.

Having so far detected the ante flexion, it is well to make a careful examination of the vaginal roof, search the anterior and posterior fornix for any contracting bands, or any perimetric effusions, while we ascertain with the finger the degree of mobility of the uterus. Still retaining the finger in the vagina, we make a careful abdomino-vaginal examination, determining the size and mobility of the fundus uteri. If doubt still exists as to whether the tumour is an intramural fibroid, or some effusion which has formed in front of the uterus, we must complete the examination with the

uterine sound. This we may find some difficulty in passing; the sound may have to be withdrawn, and a new curve given it according to the degree of flexion, before we can succeed. When we have introduced it, we can satisfy ourselves of the exact shape, direction, sensitiveness, and degree of mobility of the uterus; judge of the space between the finger and the sound, feeling the instrument through the uterine wall; at the same time we determine the length of the uterine cavity; with the hand placed on the abdomen, we may also ascertain the degree of mobility of the suspected mass. The sensation transmitted to the hand of proximity of the sound in utero, is quite different from any sensation imparted by the movement of a fibroid growth. Should we experience a difficulty in passing the sound, in a case of anteflexion, we may assist the introduction of it by pressing up the fundus with a finger in the vagina, the handle being carried well back to the perinæum. If we succeed, the sound is brought steadily, but not forcibly or too suddenly, forwards, and the fundus is raised. By such an examination as this, it is hardly conceivable that we can mistake the case of anteflexion for one of fibroid, or *vice versâ*, and overlook effusions, or any old adhesions, a vesical tumour or calculus.

Treatment.—Much of the difficulty experienced in practice in the treatment of anteflexed conditions of the uterus is due to the fact that the course pursued with encouraging success with one case completely fails with another. Cases occur in which we would expect troublesome symptoms to arise from the displacement, and yet there are none that we can reasonably attribute to it. It is better, unless forced to treat the accompanying sterility in a married woman, not to interfere in such.

In fact, our conduct of the case, by local interference, will depend on—

- (a) The discomfort caused by the flexion ;
- (b) The extent to which the uterus will support local measures, as the introduction of the sound, occasional reposition, the use of a stem ;
- (c) The presence of complications, as parametritis, perimetritis, endometritis, uterine fibroids, adhesions.

Every case of ante flexion must be treated on its individual merits. When we find that local manipulation is ill borne, that any inflammatory conditions co-exist, that after reasonable and judicious efforts to restore the uterus to its proper position we fail, it is better not to push our efforts to the borderland of rashness, but simply, by careful attention to the bowels, by encouraging retention of urine and rest in the dorsal decubitus, by the application of the most comfortable vaginal support, and by periodical reposition by the finger, to make the patient's life as comfortable as it is possible. Otherwise the two indications for treatment are clear—1st. To restore the uterus to its normal shape and position ; 2nd. To retain it by mechanical means in its proper place, while we correct the flexion and establish the patency of the uterine canal. The first indication is effected by the uterine sound, aided by the finger in the manner already described ; the second object we endeavour to accomplish by a suitable pessary, and, if necessary, the use of an intra-uterine stem to straighten the canal. The general principle of relieving local congestion, and treating any inflammatory conditions of the endometrium, or the uterine appendages, before we trust to a mechanical support, is to be observed in the case of ante flexion. Proper dilatation of the canal with bougies, incisions of the cervix, occasional depletion, the ordinary applications to the cavity of the uterus after dilatation, careful attention to the secretions, are steps that must frequently be taken, independently of the application of any pessary. In short, when the case of ante flexion presents itself, our

first duty will be to subdue any local inflammatory state ; our next, to endeavour to replace the uterus and apply a pessary ; then, if there be a tendency to stenosis (with dysmenorrhœa and sterility), to use dilators and dilate the canal, commencing with a small bougie, and gradually increasing. It is well to take the curve of the canal on the first occasion, and preserve an outline of this for future guidance in shaping the bougie ; meantime we should, when it can safely be done, at periodical intervals of some days, gently retrovert the uterus with the sound, replacing the pessary while the uterus is thus retroverted. But the step that in these cases gives frequently the most relief is section of the cervix uteri,

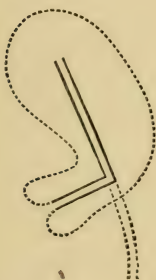


FIG. 98.—Sims's Operation for creating New Uterine Axis.



FIG. 99.—Bilateral division of the Cervix with Kuchenmeister's Scissors.*

and more especially the posterior incision advised by Marion Sims.

For those not accustomed to uterine surgery, incision of the posterior uterine wall is the safest and simplest step, and Kuchenmeister's or Emmet's scissors is perhaps the most convenient instrument to use. If the incision is made with it, the probe point of the scissors should be introduced

* See page 95.

for about three-quarters of an inch, and the cervix divided not quite up to the vaginal reflection.

If we incise the cervix and os internum with Sims's knife, which is the best instrument we can use, the operator having it directly under his control, we proceed as follows :

The patient is placed in Sims's position, and the cervix brought well in view and held securely by a tenaculum. The blade of Kuchenmeister's scissors is next introduced (the canal of the cervix may, if necessary, be dilated previously), and the posterior cervical wall is partially divided, as has been just described ; Sims's knife is now taken and introduced through the internal os, and the posterior cervical wall is laid open. If any shoulder exists on the anterior wall (Emmet), the knife should be directed to this, and it should be incised. Every precaution already insisted on when referring to division of the cervix for malformations and stenosis has to be taken. There is a certain percentage of risk in all such operations.* Were all the untoward results published, we should not have 'cutting the cervix' spoken of so lightly and flippantly as it frequently is. To prove the necessity for taking proper antiseptic precautions, both before, during, and after such operations, I may briefly refer to the following case.

A few years since a patient was admitted under my care into the Women and Children's Hospital in Cork ; she was suffering from sterility, dysmenorrhœa, and ante flexion. I determined to perform Sims's operation, which, after due preparation, I did. She recovered without an untoward symptom, and was brought into the hospital surgery for subsequent dressings, as I was keeping the incision open preparatory to the use of a glass stem. She had arranged the day for her departure from hospital. Suddenly, on the twelfth day after the operation, pain and vomiting set in,

* The operation is performed a few days after a menstrual period. Emmet insists on the necessity for rest, and the greatest care until after the next menstrual act. The patient should be kept in bed for at least ten days.

apparently without any cause. I was sent for. She complained of slight sore throat, great uterine pain, and there was general distress. A servant was taken suddenly ill in the hospital on the same day, and two children were removed to an isolated room for a suspicious eruption that suddenly appeared. These children and the servant developed scarlatina, and had to be removed. The origin of the attack was afterwards clearly traced to friends who had come from a house in which there was scarlatina, and who were visiting in the hospital. My patient suffered from all the symptoms of puerperal peritonitis, with septicæmia, and ultimately died. The case teaches its own lessons. The smallest detail in the after-treatment should not be neglected, and the patient must be protected from any accidental contact with septicæmic influences.

Pessaries.—Any of those used for anteversion may be used to retain the uterus in position in anteflexion. It will be found most convenient in practice to acquire the habit of moulding the pessary we require from different-sized rubber, metal or celluloid rings; from these we can construct a cradle, or any desired shape of Hodge's pessary. Dr. Gehrung, of St. Louis, has devised a special pessary, which will be found useful in both anteversion and anteflexion. Dr. Goodell speaks most favourably of it. I take the following description from his 'Lessons'; it is quoted from Dr. Gehrung:

'Place the pessary on a table, the superior convex arch S below, the inferior concave I above, the curves R and L pointing toward you. Then take hold of the curve L, now pointing to your right, with the right hand, and insert curve R into the vagina to the right of the patient, until three-fourths of the instrument are buried within. Now make it turn on point R as on a pivot, by pushing up curve L towards the fourchette and the left side of the patient; so that, at

the same time that curve L slips into the vagina, the arch S will turn upward under the body of the womb, and the

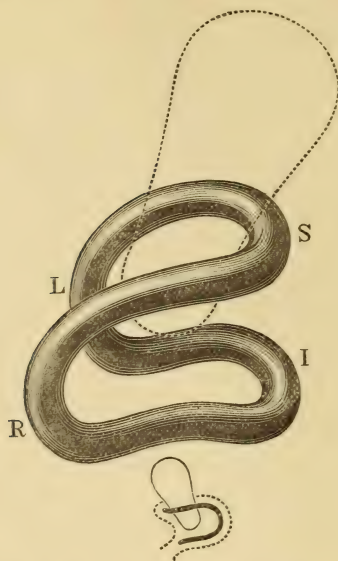


FIG. 100.—Gehrung's Pessary (Goodell).

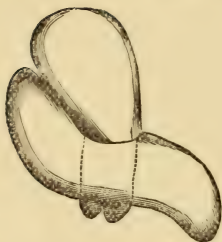


FIG. 101.—Hurd's Pessary applied in Retroflexion.

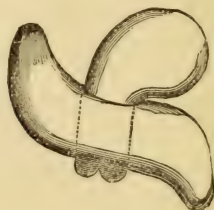


FIG. 102.—Hurd's Pessary in Antelexion.

arch I downward towards the os pubis. This being accomplished, the womb will turn to the normal axis; if it should

fail to do so, use the pessary as a repository by pressing the arch I upwards.'

Figs. 101, 102 show Hurd's pessary, applied both in retroflexion and anteflexion, with its central opening to receive the cervix uteri. 'It passes as readily,' says Thomas, 'into the vagina, when greased, as the cylindrical speculum does, and the cervix slipping into its canal, is held as if in splints, and thus bent backwards. There is no pessary with which I am acquainted that answers this function so well. It answers excellently in all cases save those which belong to a most incurable class of anteflexions, namely, those *where the vagina joins the cervix very near the os externum*. In these the cervix cannot project into the canal, and hence the splint-like action of the instrument is not developed.' A Hurd's pessary of such a size should be chosen as will not incommode the cervix.*

Intra-uterine Stems.—I have said little of intra-uterine stems in the treatment of anteflexion, for two sufficiently good reasons—1st. The cases are rare in which, with judicious management, they are required, and when the flexion is such that a stem is indicated, it will be found in practice that the chances are about equal between success and failure from its use. 2nd. The risks incurred during the time a stem is worn, and the constant supervision required from the medical attendant, added to the carelessness of patients, which cannot often be prevented, render the employment of an intra-uterine stem peculiarly hazardous in busy general practice. One may be inserted for a few days periodically while the patient is kept in bed, or lying down; but even when used thus it should be removed on the slightest sign of irritation. Though I have frequently employed intra-uterine stems in my own practice, without any bad result, and often with marked benefit, still I have always had a feeling of uneasiness during the

* See note on Fowler's pessary, p. 202.

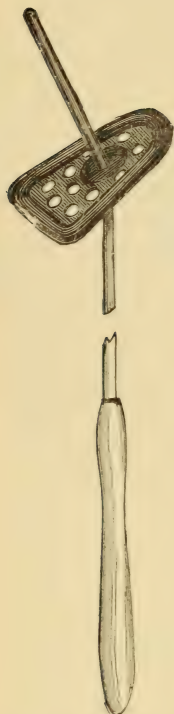


FIG. 103.—Dr. Wynn Williams' Stem.

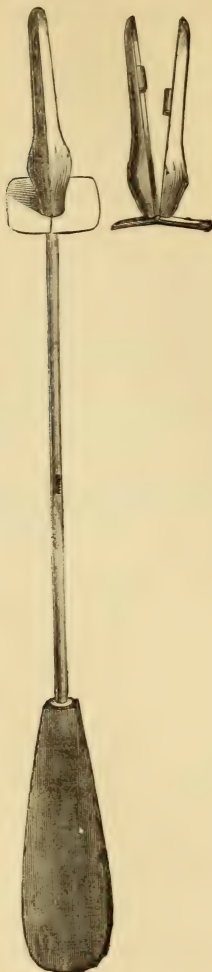


FIG. 104.—Chambers' Stem and Introducer.



FIG. 105.—Dr. Bantock's gilt Stem.

time the stem was *in the uterus*, and have always accompanied its application with the strictest injunctions to the patient regarding rest and medical supervision. The precautions to be adopted when we determine to use an intra-uterine stem in anteflexion, are these—(a) Never place a stem in the uterus immediately before a menstrual period, and when one is worn, remove it on the approach of a period. (b) Always teach the patient how to remove the instrument by means of a string attached to the lower end of the stem, and direct her to do so on the least indication of uneasiness, the occurrence of pain, any chilliness, or feeling



FIG. 106.—Thomas's Cup and Stem.

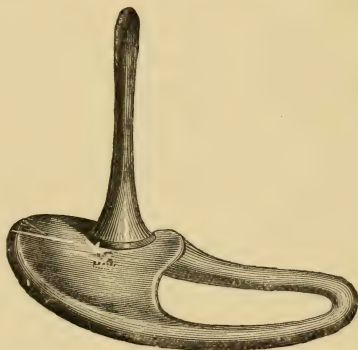


FIG. 107. —Hewitt's Stem.

of general malaise. (c) Never place a stem in the uterus if there are signs of past or present perimetritis or parametritis, or during an inflammatory state of the endometrium. (d) When possible use a smooth, straight, or slightly curved stem, such as the glass stem of Sims, the galvanic stem, or the vulcanite stem of Greenhalgh. (e) Never use an intra-uterine stem with external perinæal strap and support. (f) The stem should not reach the fundus of the uterus.

A diverging stem such as that of Dr. Bantock, which is gilt, can be introduced closed, as shown in the figure. (Fig. 105.) Or the cup and stem pessary of Thomas may be used. The vulcanite stem is supported in a cup fixed between the limbs of an anteflexion pessary. (Fig. 106.) Dr. Graily Hewitt's useful stem pessary for anteflexion is a combination of a Hodge's pessary with stem (Fig. 108). Dr. Wynn Williams has contrived a stem pessary which is as simple and safe as any other. The stem is supported on a modified Hodge, which is covered with a diaphragm of perforated indiarubber, in the centre of which is a cup to receive the bulb of the stem. (Fig. 103). The stem is first introduced on a tent-introducer, and the Hodge is then guided to its position over the handle of the introducer, the bulb being received into the cup. Fig. 72* represents Peaslee's galvanic pessary. The vulcanite stem is made of the same pattern. It has not such a tendency to slip out of the uterus as the smooth kind, and it can be applied with any modification of Hodge's or Smith's pessary.

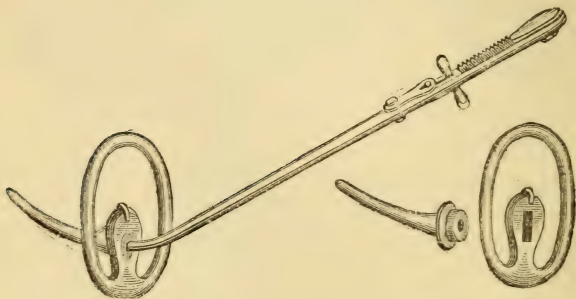


FIG. 108.—Gordon Black's Stem Pessary.

* See page 130.

In Gordon Black's pessary the oval socket receives the stem, and prevents rotation of the latter. A gold bolt fixes the two portions of the appliance. The introducer is jammed in the stem-support by a simple movement, and fixed in it until by a backward slide of the blades it is released.

CHAPTER X.

UTERINE DISPLACEMENTS—RETROVERSION AND RETRO-FLEXION.

BY retroversion we understand a displacement of the fundus uteri backwards, so that it lies towards, or on, the rectum, while the cervix uteri is directed forwards towards the pubis. This inclination occurs in varying degrees, from a slight backward version to an extreme displacement, in which the os uteri is thrown upwards and forwards, and the body of the womb downwards and backwards. I am not here referring to the retroversion of pregnancy.

Causation.—Everything that tends to relax the uterine supports, to increase the size and weight of the uterus, to weaken the uterine wall, to soften and congest the tissues, to diminish the natural pelvic support of the uterus inferiorly and posteriorly, or to drag the uterus backwards by adhesion or contraction, contributes to the production of retroversion. We thus find it frequently associated with pregnancy, laceration of the cervix, subinvolution, uterine fibroids, metritis and endometritis, rectocele, atonic or prolapsed vaginal wall, ruptured perinæum, adhesions, sedentary and standing occupations, neglect of the bladder. Retroversion is met with far more frequently in married women, and those who have borne children, than in the nulliparous. This we might anticipate from the occurrence of subinvolution and chronic hyperplasia, and laceration of the cervix and perinæum, as frequent consequences of

labour. In women who have had several pregnancies, and after severe labour, we find these results complicated by atonic and relaxed, if not prolapsing, vaginal walls. This likewise predisposes to retroversion. In these days of tight-lacing and contracted waists, when a fashionable woman's estimate of an accoucheur's skill is measured by the tightness of a binder, and the narrowness of her waist after labour, retroversion is occasionally encouraged, if not produced, by unnecessarily tight squeezing and binding.

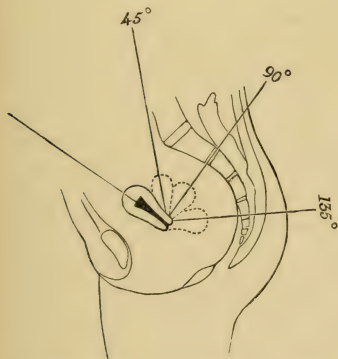


FIG. 109.—Degrees of Retroversion (Schroeder).

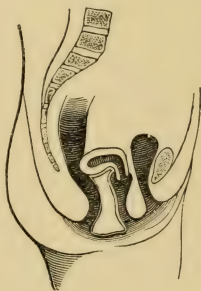


FIG. 110.—Retroflexion (adapted from Schroeder).

Symptoms.—These are the general symptoms of retroversion, pelvic discomfort, rectal and bladder pressure, distress in standing or walking, pain in the back and during defæcation; but the gravity of the symptoms arising from retroversion or retroflexion has no definite relationship to the extent or severity of the displacement. We find the symptoms aggravated in mild cases, and at times, almost absent in those in which we would expect to find considerable distress. Should an acute retroversion occur, which is rare, then the symptoms are generally very severe:—great

pain, tendency to collapse, inability to stand, are amongst the most prominent. When retroversion has existed for some time, symptoms arise which are the secondary consequences of the pathological changes induced by the version, and by the continued pressure on the rectum and bladder: dysmenorrhœa, menorrhagia, sterility, cystitis, and rectitis. Should conception occur when the womb is retroverted, or should it be displaced during the early weeks of pregnancy, it is not unusual for abortion to happen from the third to the fourth month, when the uterus enlarges, and the irritation and distress increase.

Diagnosis.—By a digital examination we may detect the cervix uteri directed towards the symphysis pubis, and the round mass of the fundus resting on the rectum. These signs at once indicate retroversion. The extent of the fundal tumour, felt posteriorly, affords a rough measure of the degree of displacement. The combined method of examination, and the use of the uterine sound, will clear up any doubt. Before we pass the sound, we must remember that pregnancy and retroversion are not uncommonly coexistent. We must not rashly take up the uterine sound until we can satisfy ourselves that the woman is not pregnant. We have to beware of the error of mistaking a fibroid tumour in the posterior wall of the uterus, a hæmatocele, an effusion (either cellular or peritoneal), for the retroverted or retroflexed uterus. The history of the case, the conjoined examination, the uterine sound, and reposition of the uterus, should prevent this error. Yet I have known scybalæ in the rectum and cellulitis more than once mistaken for retroversion.

Treatment.—Our first duty is to replace the uterus. In all first efforts to effect reposition, it is best, whether in a couch or in bed, to place the patient in the semi-prone position. If there is still difficulty, let the woman be put in the knee-pectoral position, her chest being brought well

down on the couch, and advantage taken, at the moment of reposition, of a strong expiratory effort on the part of the patient. In some cases, counter-pressure may be made in the dorsal position, between the hand placed on the abdomen, which presses down the cervix, and the fingers of the other hand, in the vagina, which elevate the fundus. In all these manipulations the bladder and rectum should be empty. At times we find the retroverted uterus congested, tender, and sensitive. In such a case it may be well to combine periodical reposition by the fingers with occasional depletion, the use of the hot douche, and the introduction of a glycerine plug at night, before we permanently replace the uterus and apply a pessary. But this necessity is rare, and the safe rule is, 'when it is practicable to do so without much force, restore the uterus to its normal position, either by the fingers or the uterine sound, and apply a lever-pessary adapted to the size of the vagina and the cervical development of the uterus.'

The best repositor is the finger, and if it fail, the uterine sound. Both Sims's and Bantock's repositors (Figs. 111, 112) are ingenious instruments—especially the latter; but the sound is the safest, most effectual, and simplest instrument for practitioners. To replace the uterus, we place the patient in the semi-prone position, and carry the index and middle fingers of the left hand into the vagina, and resting these against the uterus, we press the fundus steadily forwards. Should this not rectify the displacement, we may rest the index-finger of the right hand against the cervix anteriorly, and press it backwards towards the sacrum. We will often succeed by alternating these efforts. The plan strongly recommended by Dr. Thomas is as follows: 'The operator then lubricating the middle and index fingers of the right hand, introduces them to the fundus, he standing at the patient's back and facing her head, the palmar surface of the fingers

being directed to the rectum. The body of the uterus is lifted upon the inner surface of the fingers until it becomes erect, then their dorsal surfaces, which will readily be the backs of

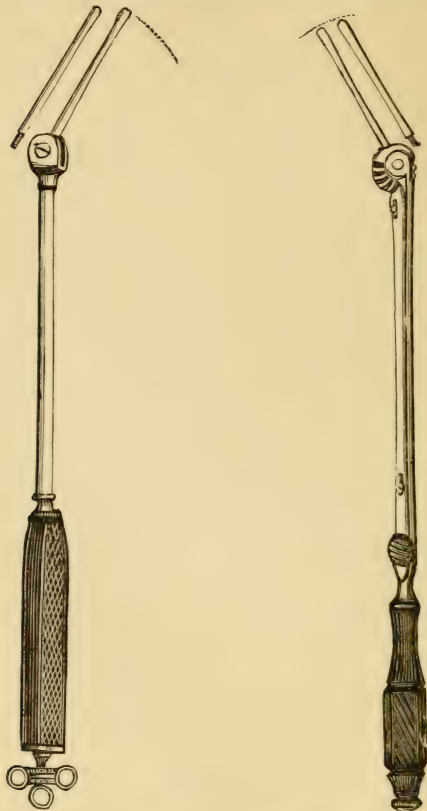


FIG. 111.—Bantock's Repositor. FIG. 112.—Sims' Repositor.

the nails, are made to push therefrom over into the normal position.' We will readily succeed in reducing, by the fingers, a retroverted uterus when the woman is placed in

the knee-elbow position. This latter postural plan should always be tried before we use any force with a repositor.

We can exert greater power with the fingers introduced into the rectum, directing the pressure against the fundus, while the woman is in the knee-elbow posture. I have never seen any harm accrue from judicious attempts to replace the uterus with the sound. This outline diagram (Fig. 113), modified from the excellent work of Drs. Hart and Barbour, shows the method of rotating the sound, and the sweep given to the handle during reposition.

Having introduced the sound, the roughened face of the handle being directed backwards, the operator takes it lightly in the left hand, and carries it, with a gentle sweep, upwards and forwards and to the right, while the handle is made to describe a semicircle, and the intra-uterine portion of the sound is thus gently rotated on its axis, and finally the handle is carried well back to the perinæum. That the uterus may, through the presence of adhesions, resist all attempts at reposition, is not to be forgotten. To an experienced hand, the degree of resistance, both to finger and sound, indicative of such an impediment, is readily discernible; but this is not so in the case of an inexperienced hand, and therefore all the more care must be exercised by beginners in using the sound for the purpose of replacement.

When the os uteri is directed very far forwards we may not be able to introduce the sound in this manner. The handle may have to be directed well forwards under the pubes, and, when introduced, the fundus must be first partially raised by pressing on the centre of the sound with the finger of the right hand, before the rotatory sweep is made with the left. The sound is not to be introduced, and simply rotated on its axis.

Should a flexion complicate the displacement, the sound must be introduced curved according to the degree of flexion. We may not be able to straighten the uterus. The same caution must be exercised, and the same means adopted, as in the case of ante flexion. Any previous inflammatory

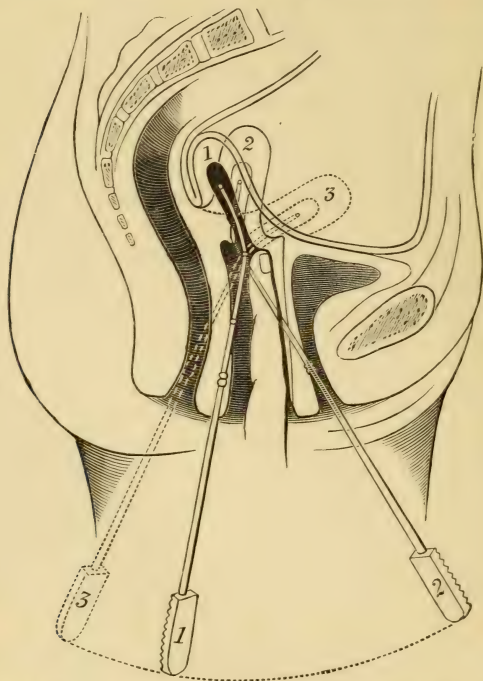


FIG. 113.—Showing rotation of Sound in Retroversion (adapted from Hart and Barbour).

condition has to be controlled. The uterus may be partially straitened by the uterine sound, and still more so by conjoined recto-vaginal manipulation—the index-finger of the right hand in the vagina pressing downwards and backwards the cervix, while the index-finger of the left in the rectum presses steadily upwards and forwards the fundus.

The manœuvre may be effected both in the dorsal and the knee-elbow position. (See 'Retroflexion.')

The Sound as a Repositor in Retroversion.—In the treatment of retroversion, I wish emphatically to state my experience, that with judicious and careful reposition by means of the sound and the patient manipulation of the uterus by the postural method, and contemporaneous adjustment of a suitable Fowler's pessary, the necessity for heroic interference is as a rule obviated. I have notes of a number of cases, in some of which Alexander's operation was advised, now completely and permanently cured, some of these women having become pregnant and borne children, in which this method of cure was followed. The sound requires, in its use, gentleness and patience. The ill effects attributed to it are generally the consequences of ill-advised and unjustifiable force, or its introduction at improper times. This figure shows the shape of the moulded soft rubber Hodge that I find most useful in cases not suitable for Fowler's pessary. I get a larger-sized Fowler (Arnold) made for some patients than that usually sold. This is absolutely necessary after old-standing retroversion, if we want to prevent the support slipping downwards.



FIG. 113a.—Soft Hodge, moulded for a case of Retroversion.

Dr. Routh's Buckle Pessary.—The buckle pessary is an ebonite Hodge pessary to which an intra-uterine stem is attached through the medium of a central diaphragm. There are three varieties :

First, a more common one for hospital use, where the diaphragm is of indiarubber, and capable of moving a little forward in a groove.

In the *second* variety the diaphragm is of ebonite, upon which the intra-uterine portion moves by a ball and socket joint. Over this intra-uterine portion a thicker covering can be adjusted, if it is desired to dilate the uterus more. The diaphragm may be moved more forward or backward, by altering the position of the screw by which it is attached to the Hodge portion.

In the *third* variety this motion, forward or backward, is effected by a screw of ebonite fastened to the diaphragm by one end, and to the inferior edge of the Hodge by the other, which can be turned at will by the finger.

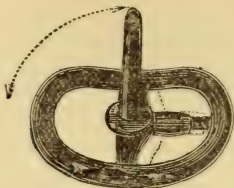


FIG. 113*b*.—Routh's Buckle Pessary.

When we have succeeded in replacing the womb, our next object is to retain it in its normal position.* For this purpose we select a pessary. In those cases in which there is tenderness and sensitiveness, it is well to prepare the patient by the application, three times in a week, of an antiseptic tampon of salicylic acid wool soaked in glycerine, which is pressed up into the posterior fornix of the vagina, so as to push forwards the fundus; while by a second tampon, applied below and in front of the cervix, this latter is pushed back; the superior plug is thus assisted in its action on the fundus. Both plugs are finally retained in position by a roll of antiseptic wool, which is passed into the vagina.

For the same object Thomas advises the use of a sponge-pessary. The sponge is attached to the stem of a Cutter's pessary, and it is pushed well up into the posterior vaginal cul-de-sac. Sponge, however, is always an objectionable substance to leave in the vagina, and its employment can seldom be necessitated in practice. If a case of retroversion resists the application of a pessary, the one lesson every

* In obstinate or difficult cases there is no better pessary for retaining a replaced uterus in its position than that of Fowler. When by manipulation we have reduced the uterus, a pessary of the proper size is selected and introduced. This should be worn constantly for some time. I have had more *permanent* satisfactory results with this pessary than with any other. After a few months it can be replaced by a soft and suitable Hodge.

prudent practitioner has to learn is patience. By the daily practice of the abdominal decubitis, local measures directed to reduce congestion or inflammation, habitual reposition, and the education of the vagina and uterus to the presence of a well-fitting pessary, we will ultimately conquer. As Dr. Gaillard Thomas well remarks: 'Some of the most gratifying results in gynecology will be found to arise from a cautious, patient, and philosophical treatment of these cases.'

There can be no doubt that the pessary, the principle of which is capable of adaptation to most cases of retroversion, let the particular form or modification of the appliance be what it may, is Hodge's lever-pessary. I wish to quote here Dr. Goodell's remarks in describing the lever action of this support:

'As its name indicates, this pessary acts on the principle



FIG. 114.—Thomas's modified Smith-Hodge.*

of a lever; but the mechanism of its action is twofold. By stretching the vagina upward and backward, it draws the cervix in the same direction. The womb then turns on its central point of ligamentous attachment as on a fixed pivot, and the fundus is consequently tilted forwards. The womb itself thus became a lever, of which its point of attachment to the bladder is the fulcrum. The power is applied to the cervix, and the fundus becomes the weight, or resistance. This action remedies retroversions, but not retroflexions, unless complicated with retroversion, as they usually are. Then, again, the pessary itself acts as a lever. The anterior vaginal wall, with the visceral pressure above it, now be-

* See page 205. Messrs. Arnold make a modification of Smith-Hodge, with the pad filled with glycerine. It is a most comfortable and efficient pessary.

comes the power applied to the lower limb, or "long arm," of the lever; the posterior vaginal wall is the fulcrum, or support; and the upper limb, or short arm, lying behind the cervix, directly pushes the weight, or fundus uteri. This action tends to remedy both retroflexion and retroversion. For instance, during the act of inspiration the descending diaphragm crowds down the abdominal viscera upon the bladder, to which are attached the cervix uteri and the anterior wall of the vagina. These organs, therefore, descend. As a result, the lower or fore end of the lever

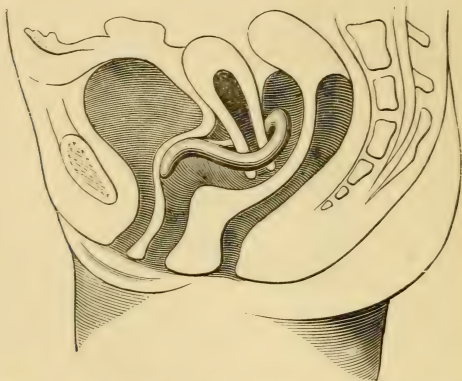


FIG. 115.—Smith-Hodge Pessary in position (after Goodell).

is necessarily pushed down by the descending anterior wall of the vagina, on which it rests, while its upper or hind end proportionately rises up and tilts forward the retroverted or the retroflexed fundus. In expiration, the reverse takes place. The pressure is, therefore, not a steady one, but a gentle rocking one, which is the most efficient of all. This, also, is the one least liable to inflict injury on the soft parts, because the points of pressure are varying ones. But

to attain these ends the pessary must be mobile, *and never so long as to put the vagina on the stretch; otherwise it loses its distinctive character of a lever, and degenerates into an ordinary ring pessary. It should further impinge on the soft parts only, and take no bearings on the solid structures of the pelvis. . . .* Such a firm basis of support was not intended by the inventor, and his pessary, as well as Smith's pessary, always acts best when the lower bar presses on the soft and yielding anterior wall of the vagina, instead of on the pubic bones.'

I have italicised some sentences of Dr. Goodell's, as I consider the points insisted on by him of much importance to those who would rightly apply a Hodge's pessary. Figs. 82-86 and 114 represent Hodge's pessary, and some different modifications of it, which will be found useful in practice, as the

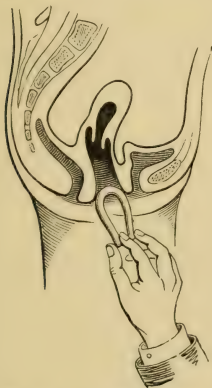


FIG. 116.—First step of introduction.

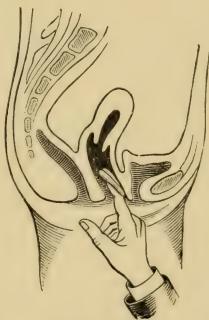


FIG. 117.—Second step of introduction.

cross bars of Greenhalgh, the retroversion curve of Thomas, the pubic curve of Smith, and the incomplete Hodge. To introduce a Hodge's pessary, bring the woman, on her back,

well to the edge of the couch or bed, with the knees well drawn up. The pessary is now taken in the right hand, while the labia are held lightly apart with the fingers of the left, at the same time that the perinæum is pressed in a downward direction. The pessary, with its uterine or longer end in a line with the vulvar orifice, is now passed into the vagina, the principal pressure being directed on the perinæum; when the pessary has completely passed the vulva, the fingers of the right, or conducting hand, are changed so as to turn the pessary half round on its long axis, thus bringing the concavity of the large curve to point forwards to the anterior



FIG. 118.—Pessary in position.

vaginal wall. This is the moment of greatest pain to the woman, and any bungling in rectifying the position of the pessary, as it lies pressing on the front of the cervix, causes still greater discomfort. The index-finger of the right hand is therefore quickly transferred to the upper bar of the pessary, which is hooked or pressed down, so as to glide over the cervix into the vaginal cul-de-sac behind. The pessary is now carefully explored, its relation to the cervix ascertained, the degree of tension of the vaginal roof felt, and the exact position of the uterus determined, before we permit the patient to rise. It is well always to explain to

the patient, or friend, the exact position of the pessary in the passage. If uneasiness should follow, we should instruct her how to remove it, by pulling, not too forcibly, on the lower bar, and by turning the instrument on its long axis and gently withdrawing it.

Figs. 116, 117, and 118 show the method of introducing, and the Hodge pessary in position.

Every practitioner must be ready to mould and shape the lever he requires for each individual case, either from a rubber Hodge, celluloid, or a rubber ring. Messrs. Arnold have patented various forms of pessary, both of the Hodge shape and ring, the rubber cushion or ring being filled with glycerine. They are preferable to those in which air is availed of. Messrs. Maw have had some admirable rings filled with air, and others with cotton-wool. I find the glycerine Hodge liable to get out of shape. It is not a very durable pessary.

Of the many other varieties of pessary, it is only necessary to mention Thomas's modification of Cutter's pessary with external support (Fig. 119), and the retroversion pessary of Thomas himself.



FIG. 119.—Cutter's Retroversion Pessary.

Schultze on manipulative Treatment of Adhesions in Retroversion.—Schultze practises careful stretching in the lithotomy position of all adhesions which keep the uterus in its false position. This is done under an anæsthetic, the rectum and bladder having been thoroughly emptied. The rectum is irrigated with warm water. The index and middle finger of the left hand are passed into the rectum, and the thumb of the same hand into the vagina. The other hand is placed on the abdominal wall. Having determined the situation and nature of the adhesions, these are gradually stretched without any tearing, at the same time that the uterus is raised. [I have learned from experience that much can be done by manipulation to free recent adhesions. It has been my practice for some time, in those cases in which I found adhesions interfere with reposition, to place the woman in the knee-elbow posture, and both by rectum and vagina to manipulate the uterus for some days before trying reposition with the uterine sound.]

RETROFLEXION.

In retroflexion, the fundus is bent backwards on the cervix, and lies against the rectum. Retroflexion may be a congenital affection, due to arrest of development of the posterior uterine wall, and may remain undetected, even after puberty. In practice, however, we have nearly always to treat that displacement which is secondary or acquired.

Causation.—We may refer to the causes of retroversion when we inquire into those which are productive of retroflexion. It is not difficult to understand how the uterus, yet softened and enlarged after pregnancy, with strained and relaxed ligaments, or with the perinæal support injured and weakened, may, while it is in a state of subinvolution, yield to abdominal or pelvic pressure, and bend at the axis or suspension. And in those cases in which there is an enlargement in the posterior wall, either as the consequence of congestion or hypertrophy, or an intramural fibroid, we can readily understand the occurrence of retroflexion. The flexion is, as a rule, preceded or attended by version. The resulting contraction in the uterine canal leads to stenosis, and obstruction to the menstrual flow, while the consequent congestion of the uterine tissues in the fundus, and the in-

crease of weight, still further encourage the tendency to uterine prolapse and flexion. As in ante flexion, cause and effect react on each other; the longer the displacement lasts, the worse it becomes, the larger the uterine fundus, and the more acute the angle of flexion.

Diagnosis.—In examining with the finger the retroflexed uterus, these two signs are detected immediately by even an inexperienced hand—the os uteri is at once reached, occupying almost the vaginal axis, while the fundus is found as a solid mass filling the posterior cul-de-sac, and a well-defined sulcus separates the cervix from the fundus. The flexion is distinctly traceable with the finger. We confirm the diagnosis by both rectovaginal and uterovaginal examination. Carrying the index-finger of the left hand into the rectum, we feel the fundus through the rectal wall, and encroaching on it; with the finger of the right hand on the cervix, we can draw on the uterus, and so detect the mobility of the tumour and the conjoined movement of the cervix and fundus. It is only in those comparatively rare cases where the uterus is enlarged and fixed by adhesions or recent effusions that any doubt can exist after a careful vaginal and bimanual examination. To confirm our diagnosis, we pass the uterine sound, but in doing this, we must exercise even greater caution than in retroversion. The difficulty will depend in a great measure on the degree of flexion. The sound must be well curved, corresponding to the curve of the uterine axis; the handle is taken lightly in the right hand, with the concavity of the instrument directed forwards and guided by the finger of the left hand, the knob is introduced as far as the internal os; by a *tour de maître* the direction of the sound is reversed, the concavity being directed backwards, and the handle carried well forward towards the pubes. Assistance can at the same time be given to facilitate its passage into the uterus by raising

the fundus with the finger of the left hand in the vagina. In those cases in which the os is directed far forwards and is high in the pelvis, the sound must be introduced with the concavity turned towards the sacrum.

Treatment.—All that has been said in regard to the management of retroversion applies with equal force to retroflexion. A suitable pessary has to be inserted when the uterus is replaced and the curve rectified. In the retroflexed womb, however, there is the flexion in addition to be corrected. The sound may have to be periodically passed, or a stem-pessary worn. If we determine to use an intra-uterine stem, we have to bear in mind all the precautions (p. 191) to be taken both before introducing the pessary and during the time it is worn. The plan recommended by Schroeder is a safe one—to place the stem for the first few days in the retroverted uterus, and not to attempt replacement until it has been thus worn for a little time. Any of the stems before described may be selected. When we have replaced the uterus, we must endeavour to retain it in position by some of the forms of pessary recommended for retroversion—more especially Cutter's (with external support), or Thomas's retroversion, or a Hodge suitably moulded to support and press forward the fundus. The question naturally arises,—What is to be done to relieve the patient in those unfortunate cases in which rectification of the displacement is impossible, and the retroflexion is incurable? Here, as in the opposite state of antelexion, all that we can hope to do is to palliate. Much relief may be obtained from the use of a soft rubber ring to steady and fix the uterus, or one of Greenhalgh's modifications of Hodge, with a few of the centre bars removed, while the soft pessary is moulded to suit the case.

We must insist on careful attention to the rectum and

the frequent emptying of the bladder. Occasional depletion, and the use of the warm douche, are indicated if there be congestion and uterine sensitiveness. Considerable relief may be given by sustained dilatation of the cervical canal and bilateral incisions of the cervix, especially if there be dysmenorrhœa.

ALEXANDER'S OPERATION.

The grounds on which Alexander's operation is advocated are almost obvious to anyone who reflects on the anatomy of the broad ligaments and the effect produced on the uterus in the dead body by traction on them.

Like other anatomical teachers, I have long since frequently demonstrated, in the dissecting-room, the anatomical connection of the broad ligaments and their relation to the uterus by pulling on the ligaments with a forceps. I have long thought and taught that we did not give these ligaments that credit for the part taken by them in the support of the uterus which they are entitled to. In the same way I have been in the habit of ascribing a characteristic pain, which is complained of in various uterine disorders, and which runs in the course of the round ligaments, to the direct tension exercised on these sensitive props, or to sympathetic and reflex irritation of the nerves accompanying and supplying them.

Dr. Alexander, struck with the insufficiency of pessaries in many cases of prolapsus and retroversion, determined to try the effect of raising the uterus and fixing it by means of the round ligaments.

His first operation was performed in December, 1881.*

* See 'The Treatment of Backward Displacements of the Uterus and Prolapsus Uteri by the New Method of Shortening the Round Ligaments,' by Wm. Alexander, M.D., etc. Churchill: London, 1884.

Since then he has operated on eighty-eight cases, and many other surgeons have performed the operation with considerable, and in many cases complete, success.

The operation, in the words of Dr. Burton, of the Liverpool Hospital for Women, is 'simple, generally easy, bloodless, and harmless.'

Dr. Alexander rightly insists that the operation is one proposed to rectify displacement and maintain the uterus in a replaced position. It is not intended as a cure for all the antecedent or attendant and many of the consequent ills from which women suffer, who have also displaced uterus.

I give the stages of the operation as described by Dr. Alexander himself :

'The patient should have her bowels and bladder emptied, and be put under chloroform or ether. The pubes are shaved on either side from the spine outwards. The pubic spine is felt with the fingers, and an incision made upwards and outwards from that point, from one to two inches in length, in the direction of the inguinal canal.

'The greater or less length of the incision depends on the amount of fat that covers the abdominal parietes. In thin subjects, and by experience in the operation, the length of the incision may be much lessened. By subsequent incisions the depth of the wound is increased until the tendon of the external oblique muscle is reached.

'The external abdominal ring is now to be looked for, and if not at once seen, will be easily found by searching for the oblique fibres crossing it, and for a small morsel of fatty tissue issuing from its inner end. In some cases the external ring is so well concealed, that inexperienced operators have some difficulty in finding it. The pubic spine, the oblique fibres that cross the external abdominal ring, and the fatty protrusion at its inner end, are the landmarks that

will readily guide the operator who has a fairly practical knowledge of the anatomy of that region. In the first incision a small artery (the superior external pudic) is sometimes cut across. It is the only vessel in danger. As a general rule the operation is bloodless.

The oblique fibres crossing the external abdominal ring should next be cut across in the direction of the inguinal canal. A reddish tissue now bulges out, so characteristic in appearance as to be easily recognised, mixed with a greater or less quantity of fat. This is the end of the ligament, *as a ligament*, just before it spreads out in the mons veneris. An aneurism-needle is now passed under *all* this fatty mass, so as to raise it out of the canal and allow it to be grasped by the fingers (not by the forceps).

‘We have now reached the most delicate part of the operation. The ligament should be gently pulled out, and all bands connecting it to the pillars of the external abdominal ring or to the neighbouring structures should be cut through. The accompanying nerve should also be cut across. In tearing the ligaments from their inguinal connections, some risk is run of breaking them or of tearing them away altogether, unless much care, patience, and judgment be exercised. As soon as these adhesions are overcome no further trouble is experienced. The ligaments pull out with the greatest ease, and appear as white, strong, substantial cords.

‘Having ascertained that both ligaments will run, the uterus should be placed in the desired position by the *sound*, and maintained in that position by an assistant, whose finger also touches the uterine cervix. The ligaments are now pulled out until they are felt to control the position of the uterus. The best rule, especially for beginners, is to pull out the ligaments as far as possible and then slacken them a little before stitching, to give

them a little "play." This method favours union by the first intention.

'When the ligaments are pulled out to the required extent, they are held by an assistant while the operator fixes them to the pillars of the external ring and to the edges of the wound in the following manner:

'A curved needle threaded with fine silkworm gut or silk, or fine silver wire, is passed through the outer part of each pillar of the external abdominal ring and through the intervening ligament and tied loosely as a buried suture. Another suture is passed in like manner internal to the first. These sutures should not be pulled so tight as to strangle the ligament. A small drainage-tube is passed into the canal for about a quarter of an inch to prevent any collection here, and so eliminate the only danger of the operation. It protrudes at the inner angle of the wound. The chafed parts of the slack of the ligaments may now be cut off, the bleeding ends ligatured, and the remainder stitched into the wound by means of the two sutures that are generally sufficient to bring the edges of the wound together. These stitches may be of silk, silkworm gut, catgut, or chromicized gut. I prefer the silkworm gut. I have tried catgut for the deep sutures, but have been disappointed with it. It gives way too soon, and was the cause of failure in two cases.

'In hospital I use the gauze-dressing and the spray during operation, but this is unnecessary even there, and the operation can be performed under any kind of *surgical* treatment, or with all varieties of surgical dressing.

'I now place a suitable Hodge pessary in the vagina and withdraw the sound. The patient's knees are flexed over a pillow, as after operation for hernia, and a morphia and atropine injection, if necessary, is given to relieve pain.

'The subsequent dressings depend on circumstances, and,

as a general rule, the wounds heal by the first intention if strict antiseptic precautions are used and the ligaments not pulled so tight as that one is strained by the other. If the buried sutures give trouble and produce a sinus that does not readily heal, the sinus should be opened up, and the irritating suture removed. When old-standing or acute retroflexion is treated by this operation, a substantial stem pessary should be inserted as well as a Hodge, and maintained for about a month, or until the recoil of the straightened uterus has disappeared. I have generally employed galvanic stems, but now use ebony stems of the same size with a broad, ponderous bulb. These maintain their position admirably while the patient is recumbent, and they should always be removed at the end of the recumbent period.

'In extreme prolapse with large ulcerated uteri, the perineal operation is necessary in conjunction with the shortening of the round ligaments to ensure success. Alone both operations generally end in failure.

'After operation, some patients complain of pain in the back or along the course of the ligaments. This inconvenience is obviated by an ordinary well-fitting abdominal belt.'

Alexander's Operation.—Mundé, Kellogg, Kelly, and many others, have published most successful results of Alexander's operation. Coe has shown that a woman's dress and mode of life, active or sedentary, influences the size and strength of these structures, as in those of sedentary habits and given to fashionable constriction of the abdominal and pelvic viscera by tight lacing, they are weak and ill-developed. The association of prolapse and anterior or posterior colpocele is regarded as an additional indication for the operation. Mundé advises the following modifications of the steps of Alexander's original operation:

1. Accurate location of the pubic spine, which is reached by an oblique incision in the direction of the inguinal canal. Generally the protrusion of a little fat indicates the position of the terminal fibres of the ligament. All bleeding is restrained.
2. Laying bare of the pillars of the ring, the whole mass of fat and tissue lying in it being raised up and an aneurysm needle passed under it close to the bone. This is done with the handle of the scalpel.

3. Traction of the mass when loosened exposes the attachments and fibres of the ligaments.

Operation of Hysterorraphy.—This operation has been performed by Kelly, Sanger, Lee, and others, for bad cases of retroversion and prolapse not amenable to Alexander's operation; for example, those cases complicated by adhesions. The steps of the operation as performed by Kelly are:

1. Laparotomy—fairly free incision.
2. Suturing the round ligaments, so as to bring them into view; this suture is carried through the peritoneal coat of the bladder, where the uterus rests, and thus maintains the natural position of the uterus to the bladder.
3. Suturing the round ligaments quite close to the uterus, to the tissues at either side of the incision in the abdominal wall.

This operation is a grave one to advise for such ailments as malposition or prolapse of the uterus. Its advocates state that the results are most encouraging, and the danger almost nil. But the difficulty soon will be to find an operation on the abdomen of a woman, or her pelvic viscera, the consequences of which can be said to be, in the common acceptance of the term, dangerous.

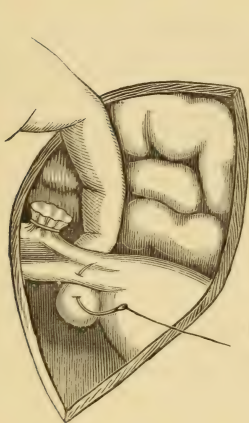


FIG. 119b.—Passage of suspensory suture through round ligament in Hysterorraphy.—*American Journal of Medical Science.*

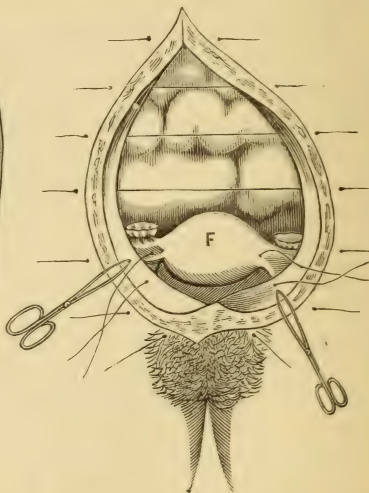


FIG. 119c.—Suturing the round ligaments to the abdominal wall in Hysterorraphy. Artery forceps everting peritoneum (Kelly).—*Ibid.*

CHAPTER XI.

PROLAPSUS.

BY prolapse of the uterus we mean a descent of the uterus in the pelvis ; this descent is attended by relaxation of the vaginal walls, prolapse, and frequently inversion of the vagina itself. The bladder is involved according to the degree of the prolapsus. If the uterus passes outside the vulva, we may have an accompanying cystocele or rectocele, both bladder and rectum being dragged on by the descending uterus and vagina. The prolapse is generally divided into three stages : in No. 1, the uterus lies entirely within the vulva ; in No. 2, it makes its appearance outside the vulva ; in No. 3, it is protruded entirely outside the vulvar orifice. These two latter stages are also styled 'procidentia.' The influence exerted by the vagina and perinæum in supporting the uterus in the pelvis has been already referred to, as well as the part taken by the utero-sacral and other pelvic ligaments in the suspension of the uterus from above. Three pathological conditions we would then expect to find associated with and contributing to prolapse :—relaxation of the pelvic ligaments, atonicity of the vaginal walls, and weakened or absent perinæum. But further descent of the uterus necessarily means version. As the heavy uterus descends, the fundus yields to the abdominal pressure, and is directed or forced backwards, and thus a state of retro-version ensues.

The displacement, on the other hand, may commence

with retroversion or anteversion of the uterus—commonly the former; or the descent of the womb may be consequent

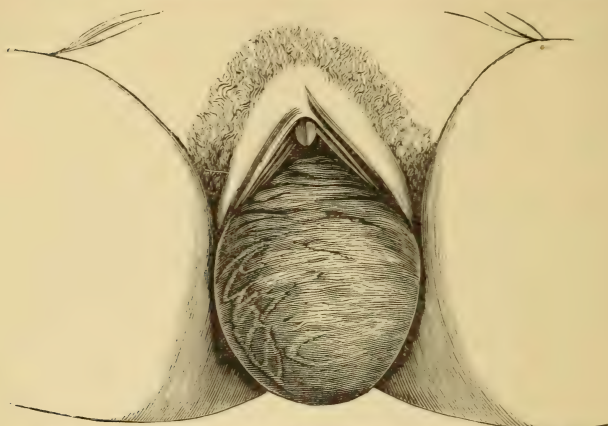


FIG. 120.—Case of Author's, complicated with Cystocele.*



FIG. 121.—Showing gradual descent of Uterus (Thomas).

upon a positively prolapsed condition of the vagina. It is rare to see a well-marked case of prolapse of the uterus in

* This drawing was taken of a case reported by me many years since; the dissected tumour, with the genital organs attached, was exhibited by me at the Cork Medico-Chirurgical Association, and published in the *Dublin Quarterly Journal of Medical Science*. The appearances corresponded exactly to the section seen in Fig. 122 taken from Schroeder.

which there is not accompanying vaginal prolapse, which, in the great majority of instances has, I believe, occurred synchronously with the uterine descent; the causes which operate in producing the one displacement, at the same time, tend to induce the other. It is frequently difficult to

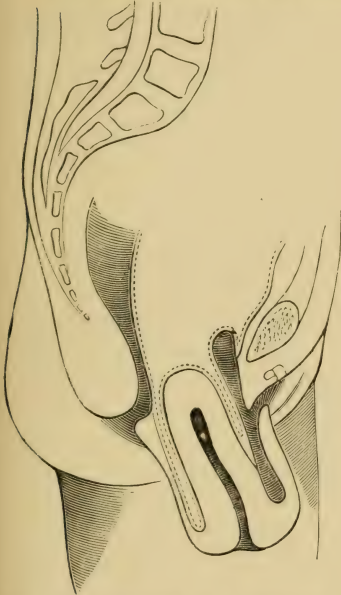


FIG. 122.—Prolapsus with Cystocele (after Schroeder).



FIG. 123.—Hypertrophic elongation of Cervix (Schroeder).

These drawings are placed side by side so that the two conditions, prolapsus and hypertrophy, may be compared.

say whether on the vagina or uterus these causes have first taken effect. The uterus descends in the vaginal axis, and gradual inversion of the vagina accompanies its downward progress. The entire organ becomes congested, and, as a consequence, there is general hypertrophy both of the supra and infra-vaginal portions. But this hypertrophy is generally greater in the infra-vaginal portion of the cervix.

which is seen thickened and elongated. This hypertrophic condition of the cervix, both supra and infra-vaginal, is an important factor amongst the causes producing complete prolapse. If we thus take, in their sequence, the usual pathological events which operate during the occurrence and completion of the prolapsus or procidentia, they would be much as follows : (1) relaxation of or deficiency in the uterine supports ; (2) retroversion of the uterus ; (3) descent of the uterus ; (4) partial prolapse of the vagina ; (5) incipient inversion of the vagina ; (6) incomplete prolapse of the uterus, with descent of the bladder, and possibly of rectum ; (7) during the occurrence of the processes 4, 5, 6, enlargement of the uterus, with hypertrophy of the supra and infra-vaginal portions of the cervix, and eversion of the lips of the os uteri ; (8) further inversion of the vagina, with protrusion of its anterior wall, and thickening of the mucous membrane, which gradually becomes hard, and, it may be, eroded in parts ; (9) complete prolapse of the entire uterus and inverted vagina, both altered by exposure and friction.

Causation.—The common predisposing causes are :—pregnancy ; deficient or absent perinæum ; laceration of the cervix ; uterine tumours, abdominal tumours ; uterine hyperplasia ; imprudent clothing ; advancing age ; ‘too roomy’ pelvis ; constant standing and the raising of heavy weights ; accident or shock ; severe labour, in which instrumental delivery has been necessary. In women who have borne many children, especially in advancing years, we occasionally find all the pelvic supports weakened, the ligaments enlarged, the vagina having a tendency to prolapse, the perinæum deficient in vital tone, and the sphincter-vaginal muscles also weakened.

* An interesting paper on ‘A Case of Prolapse of the Cervical Zone of the Uterus, preceding Labour, at Full Term,’ was recently read at the Royal Academy of Medicine, by Dr. H. W. Kidd, of the Coombe Hospital. In this paper he gives a complete *résumé* of the records of cases of prolapse of the pregnant uterus.—*Dublin Monthly Journal of Medical Science*, December, 1889.

Laceration of the cervix, as a consequence of labour, has as its usual attendants—enlarged uterus and deficient perinæum. Both uterine tumours and uterine hyperplasia cause increase of weight of the uterus, and so tend to prolapse. Pressure directed on the uterus from above, either from some abdominal tumour, or from the more common source—tight clothing and heavy garments—pushes downwards the uterus and induces prolapse. Great exertion, necessitating fixation of the diaphragm and straining efforts of the abdominal muscles, when continued for a length of time in some laborious occupation, bring a general weakness of the pelvic ligaments and a sinking of the uterus: and this, with the secondary changes occurring in the uterus itself, is the cause of the descent.

During some violent efforts, in epileptic convulsions, while straining at stool, or in a severe fit of coughing, the uterus may descend and be prolapsed. As a rule, there has been some antecedent condition favouring the prolapse, as too roomy a pelvis; partial prolapse of the vagina; or a womb supported by an atonic vagina and perinæum, and rendered heavy by a polypus, fibroid tumour, or subinvolution.

Symptoms.—Pain is felt of a ‘dragging’ and ‘bearing-down’ nature—mostly in the back and loins, aggravated by standing or walking. The patient occasionally complains of a sensation as if ‘something were coming down,’ when at stool. In the earlier stages the symptoms of retroversion are present; later on, when the bladder and rectum participate in the displacement, symptoms of vesical and rectal distress follow:—rectal irritation, tenesmus, sense of pressure, occasional difficulty in defæcation, ending, when there is complete prolapse, in cystocele or rectocele. The congestion which accompanies the prolapse is the cause often of menorrhagia or metrorrhagia. In extreme cases the epithelial surface of the procident mass—at first

thickened and rough—may inflame and ulcerate, and these ulcerations may scale over and occasionally bleed. The irritation from the urine still further increases such ulcerations. I have seen a large gangrenous slough on the surface of a procident uterus. This may be the result of strangulation of the mass at the vulvar opening.

Some time since a lady, over sixty, consulted me for complete prolapse of the womb, and a foul discharge, which had continued for some time. On examination, I found one of these foul ulcerations, in size about the circumference of a penny ; and issuing from the hardened and everted os uteri was a most fetid and dirty-coloured discharge. I feared malignant disease of the uterus. I dilated the canal, and found, growing from the upper part of the elongated cervical portion, a small polypus, which I removed. The interior of the uterus I then treated with nitric acid—this I repeated ; the external ulceration I also treated with nitric acid and chromic acid. Gradually this patch healed, and the discharge from the uterus became less offensive, and finally disappeared. The patient, before I saw her, had tried a variety of supports, and had given each up in turn from its inability to sustain the uterus. Ultimately I returned the prolapsed womb, and retained it comfortably in position with a vulcanite Zwanck's pessary, for which she was prepared by the previous use of oakum.

Diagnosis.—In the earlier stages of prolapsus we find the os uteri lower than usual to the examining finger, and the body of the womb lower in the pelvis. It may be that the uterus is anteflexed, or that there has been an antecedent retroversion. Even in this early stage we may detect a prolapsed state of the vagina and a flaccid condition of the anterior vaginal wall. If the uterus has descended for any distance, or if it presents at the vulva, or is outside of it, the least care will prevent any error of diagnosis. It is better

to examine the patient standing, if we desire to estimate the degree to which the uterus has descended. It is well always to take the measurement of the uterine cavity with the sound. This is necessary, not alone to determine the position of the uterus, but also to differentiate true prolapse of the uterus from either prolapse complicated with hypertrophic elongation of the cervix, or the same distortion when it occurs alone.

In ordinary prolapse the sound may pass a little further than natural into the uterus, or the canal may be normal in

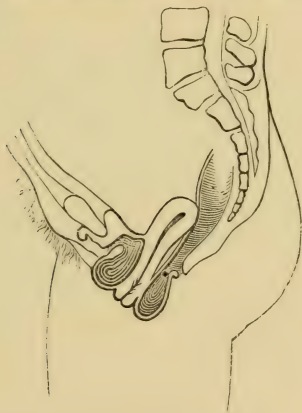


FIG. 123a.—Ruptured Perinaeum, Rectocele, and Cystocele, with Elongation of Cervix, simulating Prolapsus (after Martin).

length; while if there be hypertrophic elongation of the cervix, the sound passes a considerable length, and we prove with it that the uterine cavity is enlarged, while by palpation we feel the fundus in its proper position. If we pass the uterine sound into the prolapsed uterus, while in the state of procidentia, it may enter to the extent of some three or more inches. When the strain is removed from the relaxed tissues, on reposition, it will be found to pass to

about the usual length. With any exercise of caution, no one can mistake a case of procidentia for polypus or inversion of the womb. (See 'Hypertrophic Elongation of Cervix.')

Treatment.—We may divide the treatment of prolapsus thus: (1) Prophylactic; (2) replacement; (3) retention; (4) operation. Under the first head we include those general constitutional and local measures which tend to reduce the size and weight of the uterus. With this object we enjoin

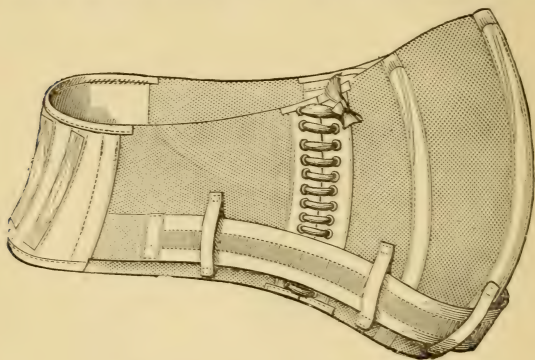


FIG. 124.—Abdominal Support.*

such an amount of rest in bed, or on a couch, as the patient's circumstances will permit. Unfortunately, many cases of prolapse are met with in women who have to work for their living, and who cannot afford to lie down. In the earlier stages, when we recognise the displacement, the free use of the vaginal douche, with astringent washes, such as those of

* Any abdominal support should be fitted accurately on the patient by the maker, and be made to properly-taken measurements. Many belts are quite useless; they slip up on the waist and do not support the uterus. A silk elastic support, made like a weft Nightingale cholera belt, is very comfortable. These latter belts are most comfortable in winter, and will be found useful in many cases where our object is to keep the abdomen warm. They can also be had in Jaeger's flannel.

alum, tannin, or sulphate of zinc, or tampons of salicylic acid wool and glycerine. These powders, being added to the tampon in various proportions, can be introduced by the patient at bedtime, and worn during the night. Tight-lacing must be prohibited, and the under-garments suspended from the shoulders, and not from the abdomen or hips. The patient may be made to wear a properly adjusted abdominal support or belt. This should fit accurately, raising and supporting the intestines above the pubes.

Regular cold bathing, and especially sea-bathing, when such can be had or borne, are of service. At the same time, any constitutional or local condition which promotes either congestion of the uterus or favours relaxation of its supports must be attended to. Occasional depletion of the cervix; the administration (during the menopause especially) of such tonics as strychnine and the mineral acids, quinine and arsenic; careful attention to the bowels, so as to prevent all straining at stool, with the occasional use of a cold-water enema or a saline water given in the morning, and the correction of any version or flexion of the womb, are some of the simplest and most efficacious measures we can adopt.

It is of special importance to attend to any chronic cough, and to allay laryngeal and lung irritation. If the prolapse has lasted for some time, and the uterus is descending low in the vagina, or is protruding from the vulva, we have to replace it.

To replace the procident mass, we get the patient into the knee-elbow position, and, grasping the base of the tumour, we follow the advice insisted on by McClintock in all such cases, and return that portion last which protruded first. The uterus should, if necessary, be prepared for the use of a pessary, and those means already detailed should be employed to contract the vagina and reduce uterine congestion.

To retain the uterus in position we have recourse to pessa-

ries. I shall not allude here to those unscientific curiosities, but rejecting, with Dr. Robert Barnes, 'the whole array of boxwood balls, and huge thick rings, which depend for their efficacy on mere bulk,' proceed at once to notice those pessaries which will be found to retain and support the womb with as little injury to the contractile power of the vagina as possible.

What the results of the practice of placing in the vagina these huge and incompressible balls must be, we may judge from Dr. Barnes's description of an extreme case, in which he had to apply a strong polypus forceps, with curved ends, to grasp the ball, and thus remove a ball 'nearly as large as

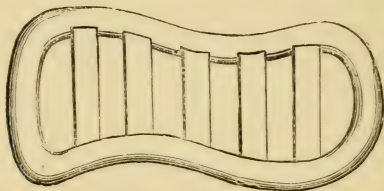


FIG. 125.—Hodge's Pessary with crossbars of Greenhalgh.

the head of a seven months child.' We may classify the pessaries useful in prolapse under these heads :

- (a) Those useful in incipient descent, complicated with retroversion or anteversion.
- (b) Those applicable in incomplete prolapse of the uterus, with partial prolapse of the vagina.
- (c) Those suitable for complete prolapse of the uterus, with inversion of the vagina and loss of contractibility of the vaginal walls.

For class (a) the best pessary we can employ is the ordinary Hodge. We may select any of the materials we prefer—vulcanite, celluloid, or wire with rubber covering. I prefer the celluloid, as it is the easiest moulded to the shape and

* Save in some cases of prolapse, I do not care for these elastic bars.

size we require. We must adapt it according as the uterus is retroverted or anteverted. The Hodge, with a soft bar anteriorly (Greenhalgh), is an admirable pessary; or that with the crossbars of rubber (Figs. 125, 126).

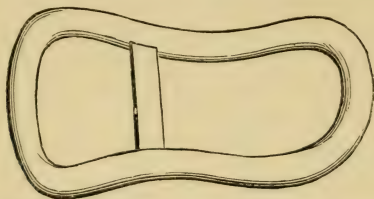


FIG. 126.—Hodge's Pessary with crossbar of Greenhalgh.

In class (b) Hodge's pessary will be found to answer admirably in a large number of cases. Here the pessary should be well cupped, large enough to retain its position, but not

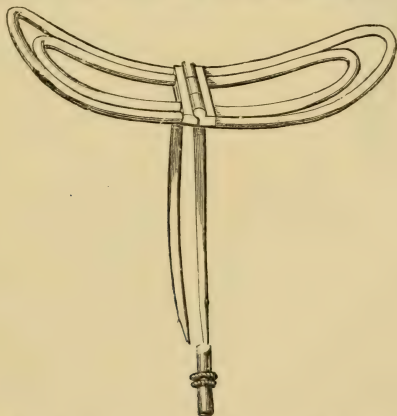


FIG. 127.—Godson's modification of Zwanc's.

so large as to forcibly distend the vagina. Such a pessary we should teach the patient how to remove and replace. All pessaries should be periodically removed and cleansed, and

during their use vaginal injections, with Condyl's fluid, should be occasionally employed. If a Hodge's pessary, or some modification of it, do not rectify the prolapse, we may try the 'watch-spring' or rubber glycerine ring.* The ring must be of a size suitable to the case, sufficiently thick, and with a strong spring. It had better be removed at night by the patient, and reinserted in the morning. In this degree of prolapse, also, we may have to use a Zwanck's pessary. We may use the vulcanite kind or the modification of Dr. Clement Godson. I find that patients manage the vulcanite Zwanck best, and prefer it to the wire. It has the disadvantage that it is apt to accumulate discharge and



FIG. 128.—Vulcanite (Zwanck).



FIG. 129.—Watch-spring Ring.

thus become unpleasant; also the screw which regulates the divergence of the wings is liable to be broken in screwing or unscrewing it. The patient is easily taught, however, to use the pessary, and how to insert or remove it. This latter she should do on lying down at night, placing the pessary in a little weak Condyl's solution. If Godson's kind be selected, it is equally easy of adjustment, and **it certainly** has the advantage in cleanliness and durability.

In complete prolapse it will be found extremely difficult

* Messrs. Arnold. This glycerine ring is by far the best ring pessary made. It has the disadvantage of requiring more frequent renewal.

to sustain the uterus by any pessary. If we fail with a Greenhalgh, we may try Cutter's prolapsus pessary, or Barnes's

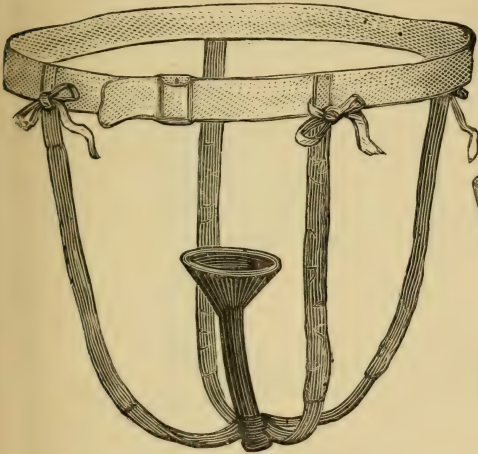


FIG. 130.—Barnes's Cup and Stem.

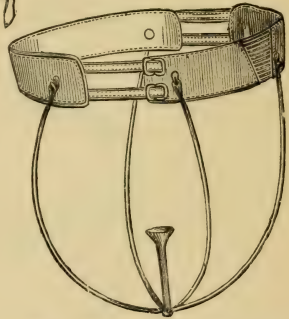


FIG. 131.—Napier's Prolapse Pessary.

cup and stem, made either in vulcanite or gutta-percha, re-

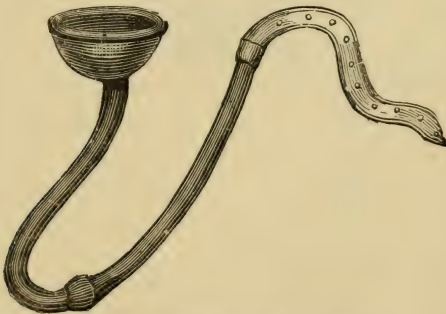


FIG. 132.—Cutter's Prolapsus Pessary.

tained with elastic bands. I do not find the inflating pessary of much service in prolapsus ; yet it is the best of its

kind. But I dislike the principle of all these balls and rings, and rarely myself use them. In many cases, and in every variety of displacement, both material support and considerable comfort may be obtained from a carefully fitted abdominal support.*

Much may be done in such cases by a proper perinæal pad; this can be maintained in its place on the perinæum by a suitable abdominal support and perinæal band, like that of Palfrey (Fig. 136, Messrs. Maw and Son).

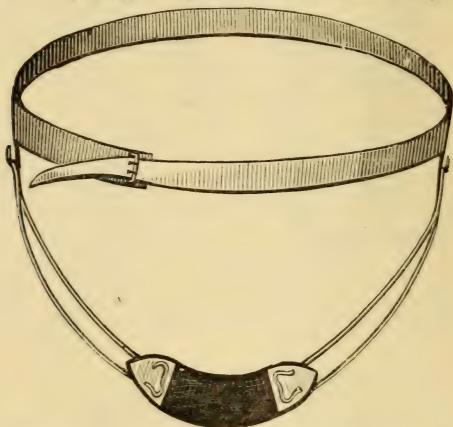


FIG. 133.—Light Pelvic Strap for applying Perinæal Pad.

Surgical Procedures.—Various plastic operations are performed to remedy complete prolapsus. I do not enter in detail into the steps of these operations here; they are fully and most completely described in all the larger works on gynecology. We may thus classify them:—1. Those operations undertaken with the object of restoring and strengthening the perinæal body; 2. Those intended to produce contraction of the vaginal canal; 3. Partial closure of the vaginal opening; 4. Amputation of the cervix.

* See chapter on 'Massage.' For treatment of prolapse of the uterus try massage and pelvic gymnastics.

Perineorrhaphy.—‘If we ever intend,’ as Dr. Gaillard Thomas insists, ‘to inculcate true, rational, and reliable precepts,’ we must regard the perinæal body as the triangular concavo-convex body, with its apex superiorly, composed of strong elastic connective-tissue, that fills in the

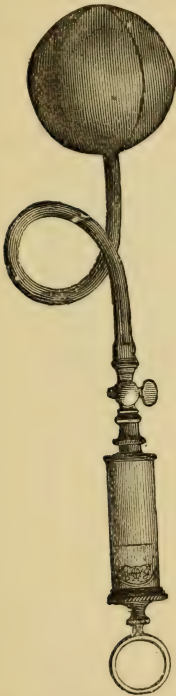


FIG. 134.—Inflating Pessary.

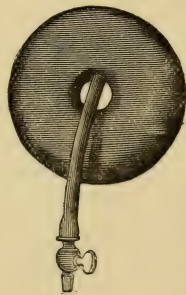


FIG. 135.—Air-pad Pessary

space between the anterior wall of the rectum posteriorly, the vaginal wall anteriorly, and the summit of the vagina above. This elastic connecting pillar is itself under the influence of, and is supported on, a set of muscles, the

tendency of whose action is to throw the perinæal pillar upwards and forwards, thus assisting in the support and closure of the vaginal canal.

(1) It 'sustains the anterior wall of the rectum and prevents a prolapse of the bowel, which, did it occur, would inevitably drag downwards the upper vaginal concavity, and with it the cervix uteri, and destroy the equilibrium of the uterus. (2) It sustains the posterior vaginal wall, and prevents a prolapse of this partition, which would favour

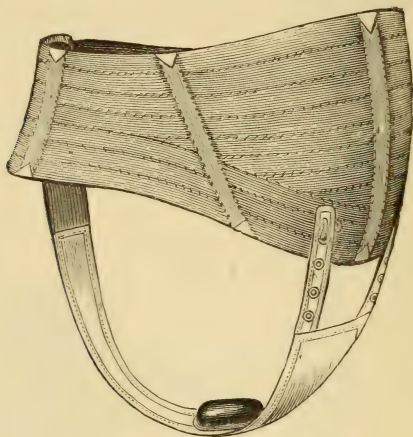


FIG. 136.—Palfrey's Perinæal Pad.

rectocele. (3) Upon the posterior vaginal wall rests the anterior, and upon this the bladder, and against the bladder lies the uterus; all of which depend in great degree for support upon the perinæal body. (4) It preserves a proper line of projection of the contents of the bladder and rectum, and thus prevents the occurrence of tenesmus, a frequent cause of pelvic displacements. It is truly "the keystone of the arch" on which the uterus is supported in the pelvis.' (See Gaillard Thomas, 5th Ed., p. 162.)

We need, then, feel no surprise that, in consequence of laceration during parturition, or from atonic states due to prolonged pressure or constitutional debility, the perinæal body should no longer perform its part in the mechanism of the pelvic supports. Displacements of the uterus are

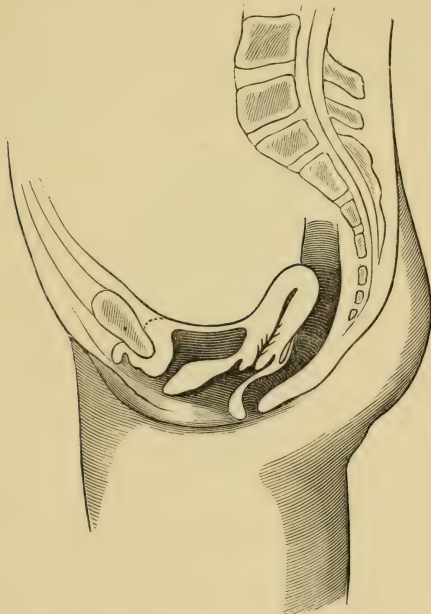


FIG. 137.—Absent Perinæum (after Martin).

amongst the consequences, and especially prolapsus. Assuredly if practitioners only recognised the ills, immediate and remote, which follow lacerated perinæum, we should less frequently hear of 'secondary operations.' The sensible obstetrician stitches the perinæum at once when he recognises the laceration after parturition. The futile plan

of binding the knees together were better never conceived, unless indeed to be adopted after the immediate operation. It encourages procrastination, and is almost certain to end in failure.

Take it all in all, I believe that there is not, in the entire range of gynecological practice, a point more necessary to insist on than early closure of the perinæal wound after parturition. This caution pertains rather to midwifery than to gynecology; but it has such important bearing on the future happiness and comfort of a woman, when the labour

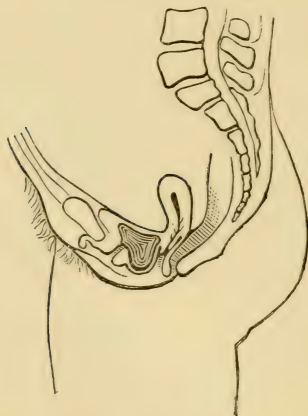


FIG. 137a.—Ruptured Perinæum and Cystocele (after Martin).

has been long forgotten, that it warrants this stress being laid upon it.

Whatever operation is performed (I believe that of Mr. Lawson Tait to be one of the most perfect in principle, and not difficult of execution), the objects are, to denude the edges of the rent; to expose, posteriorly, two raw vaginal surfaces for union, so as to bring the rectum forward; to restore the power of the sphincter ani; and to create, where

necessary, a new perinæal body. The steps vary according as the operation is intended merely to rectify a partial rupture or a complete rupture. In the former case, the operation is a comparatively trivial one, whereas, in the latter, we have not alone to construct a perinæal body and narrow the vagina, but also to re-establish the functions of the sphincter muscle.

Operations intended to produce Contraction of the Vaginal Canal (Elytrorrhaphy).—The principle of these operative procedures consists in the removal from the vagina of portions

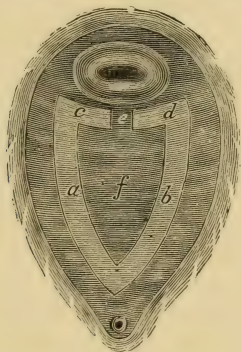


FIG. 137*b*.—Sims's Operation for Procidentia.

of the mucous membrane from the anterior or posterior wall, or from both. The shape of the portion removed, whether the triangular form of Sims, the variously shaped surfaces exposed by Emmet, the pentagonal of Simon, the oval denudation of Dieffenbach, is of secondary importance. Sims's operation (colporrhaphy) is that perhaps most frequently performed.*

As the simplest of operative measures, that of Marion Sims may be selected. It consists of the following

* For a complete description of these operative procedures the reader may best consult the last edition of Dr. Emmet's work (Churchill, London, 1885).

† See page 250. —Reamy's operation.

steps: First, the anterior wall of the vagina (which is the primarily prolapsing portion) is hooked up and drawn well towards the posterior wall; secondly, with an Emmet's or Sims' scissors a V- or trowel-shaped portion of the mucous membrane is removed, the apex at the neck of the bladder and the arms extending to the sides of the cervix uteri; thirdly, the denuded surfaces are brought together by sutures (of silver wire or silkworm gut) passed transversely. Sims, in his later operations, left a small portion of undenuded tissue at (*e*) to permit the escape of any pent-up secretion.

It has to be remembered that we have three distinct abnormal states to consider in connection with this operation: primary prolapse of the vagina (antecedent to the prolapsus uteri), hypertrophic elongation of the cervix, and prolapsus uteri. Associated with the descent of the uterus are the two fundamental errors, want of vaginal support, and uterine traction. Increase of uterine weight is the third most important factor. No operation can give us the assurance of correcting these conditions, nor yet a series of operations. Hence we can give no guarantee of any permanent result.

Operation for Closing the Vaginal Opening (Episiorrhaphy).—This may be done to the extent of completely closing the vaginal opening, leaving only a space for the passage of urine; or the orifice may be contracted, and yet sufficient room permitted for coitus.

Deferred Operation for Lacerated Perinæum.—As a minor gynecological step, frequently required of a practitioner, it may be well to describe here the steps of the operation for complete or partial rupture of the perinæum, when the operation is deferred.

Appliances required.—A straight scalpel; a pair of curved scissors; artery forceps, dissecting forceps, some torsion forceps, a few bulldog forceps; perinæal needle, with the eye in the point, rectangular or curved; a few short well-

curved needles, and needle-holder ; silkworm gut ; silver wire ; a shot-compressor ; a self-retaining catheter ; open sponge-holders. A few assistants and an anæsthetizer are required, and a nurse.

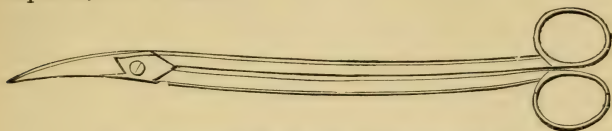


FIG. 138.—Scissors of Sims, curved on the flat.

The patient is placed on a conveniently sized table, opposite a good light, and is thoroughly anæsthetized. The head and shoulders are supported with pillows. She is brought well to the edge of the table, in the lithotomy



FIG. 139.—Self-retaining Catheter (Skene-Goodman).

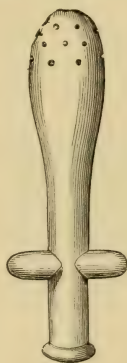


FIG. 140.—Self-retaining Catheter (Sims).

position, and the knees are held apart by two assistants :* one of whom controls the knee with his arm, while at the same time he stretches the labium of that side either with the free hand or with the hand of the same arm, which leaves the other at liberty to assist the operator.

* The crutch before referred to, of Alexander or Clover, may be used.

As the operation may be tedious,* the feet and legs of the patient should be protected from the cold by stockings, and blankets wrapped round them. All being in readiness, the



FIG. 141.—Ordinary Self-retaining Sigmoid Catheter.

operator cuts off closely the hairs round the margin of the rent. He next introduces two fingers of the left hand into the rectum, and puts the mucous membrane on the stretch.



FIG. 142.—Denuded Surface, Anus involved (Goodell). No. 1.



FIG. 143.—Denuded Surface, Anus not involved (Goodell). No. 2.

I shall include here the steps required, presuming the rent to extend as far as the anus. The operation is commenced by paring off with knife or scissors, or both, the rectal

* See pages 242, 247—Alexander's crutch and leg-rest of Clover.

margin of the mucous membrane, and continuing the dissection by removal of a layer of the mucous lining of the posterior wall of the vagina to the extent of an inch and a half. The lateral margins are now attacked in a similar manner, until a triangular raw surface at either side of the labium is exposed, of about one inch in breadth, and over an inch and a half in length. Bleeding is readily controlled by torsion and small bulldog forceps or serres-fines, assisted by the use of some iced water.* The raw surface at one side should be an exact counterpart of that on the other. The extent of the denudation, anteriorly and posteriorly, will depend on the extent of the laceration. He now prepares to pass the sutures. One sharply curved needle, such as that of Croft, or a properly curved short needle, held in a needle-holder, is passed, armed either with Bantock's silk, silver wire, or silkworm gut (I prefer wire), from the lower margin of the anus and half an inch to its outer margin, deeply upwards, across the recto-vaginal septum, well in front of and above the bowel-orifice, and is brought with a sweep of the needle down and out at a corresponding point at the opposite side. This is Emmet's suture. When passed, nothing should be seen of the wire save the two ends. It is represented in the figure by the dotted line. This suture is next secured by twisting. The perinæum is now closed by sutures entered at the points shown in Figs. 142, 143. The safest plan is to pass the first few sutures, unexposed, through the recto-vaginal suture. The last few passed will be partly exposed on the vaginal side of the rent. Each suture is secured by perforated shot. The wound is cleaned and sponged with carbolic solution; the thighs are brought together, the patient is placed on her back, and the urine is drawn off twice daily, or oftener if necessary. I much prefer to draw off the urine rather than trust to a retained

* Better still by means of a sponge and very hot water.

catheter. Should it become clogged or slip out, though this can hardly happen with the Skene-Goodman or Sims's instruments (Figs. 139, 140), the success of the operation may be endangered. The bowels had better at first be

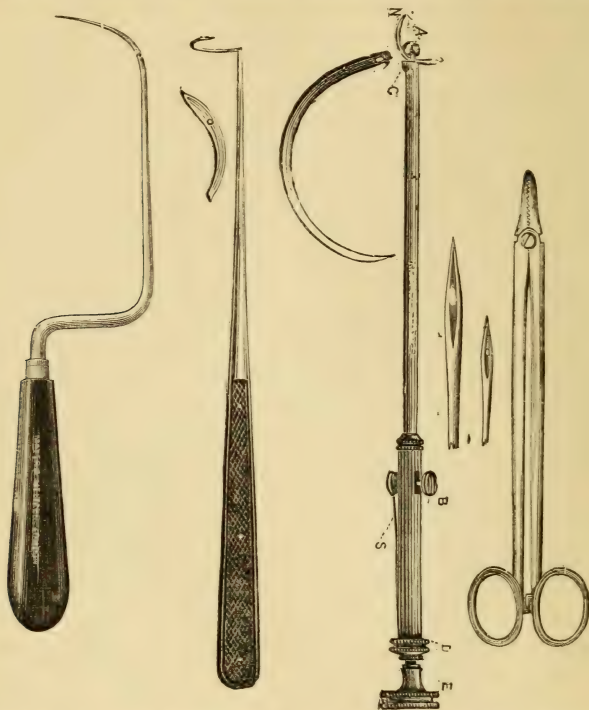


FIG. 144.—Perineal Needles. FIG. 144a.—Needle-carrier (Mayer & Meltzer). FIG. 145.—Needle-holder of Sims.

locked with opium, and simple but nourishing food given. They need not be moved until the sixth or the seventh day. This is effected by an emollient enema, and, after they have acted, the rectal stitch may be removed. The patient must keep her bed for a fortnight, and it is well to have the

knees bound together. I have had equally good results by the administration, every other day, of an olive-oil enema. In fact, it is the plan that I generally adopt. We get rid of the unpleasant complication of the locked bowel, and the risk attendant upon the passing of hard fæcal masses, with the consequent rectal irritation. Perfect cleanliness must be enforced after the operation, and the vagina should be carefully washed out each day with tepid permanganate of potash injection. It is well to keep a dry thymol pad over the wound, with a light perinæal bandage.

TAIT'S OPERATIONS ON THE PERINÆUM.*

I have said that I prefer the operation of Mr. Lawson Tait; I am indebted to Mr. Tait for the following description of his method of making a perinæum. It will be found the simplest of execution in most cases, and thoroughly effectual.

'These are of two kinds. The first I term extension of the perinæum from behind forwards, and for this I make, by means of a sharp pair of pointed scissors, a horseshoe incision round the perinæum, the horns extending as far forwards as I judge to be necessary. It is made deeply into the substance of the labia on each side, and when its flaps are separated it makes a V-shaped groove on each side. As many silkworm gut sutures as seem necessary—generally three or four—are inserted by a handled needle, the needle entering well within the margin of the wound, so as to open out the V completely and evert its lips. The outer flaps of each V on the several sides are turned outwards, and the inner turned correspondingly inwards, and when the stitches are tightened they are in this way ap-

* This operation may be said to have superseded all others, and is the one I strongly recommend to the practitioner.

In the *Dublin Medical Press and Circular* of May 9th, 1889, is the description of a simple but efficient operation for lacerated perinæum, by Dr. Duke, of Dublin. For it he claims—simplicity, avoidance of sepsis, no loss of tissue. It is favourably reported on by Dr. Moore Madden.

proximated as plane surfaces, and so they unite, making a very firm and thick platform for the displaced organs to rest upon, and this rarely gives way. I generally now leave the sutures in for three or four weeks.

‘For torn perinæum the operation again is the same in principle, though different in detail. When the marginal folds of the buttocks are fully drawn asunder in such a case, the old tear is displayed by a thin white line of cicatrix extending transversely to the axis of the rent, which of course was at right angles to the plane of the perinæum.

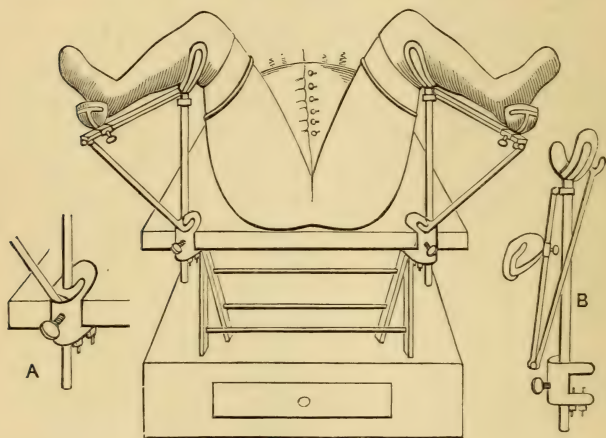


FIG. 145a.—Crutch and Leg-rest, with Couch of Alexander. It is useful in perinæal and similar operations, obviating the necessity for two assistants.

The healing of the tear has taken another direction altogether, and we have the cicatrix at right angles to the wound. This is, so far as I can think out the question or know the facts, wholly unique in its occurrence. It forms the basis of the principle of the operation which I perform, and that is absolutely the opposite, as I have already said in a correspondence on this subject with Dr. Percy Boulton, of the principle of all denuding operations. The scheme of

my operation is to restore the old rent and unite it at right angles to its representative cicatrix, that is, at right angles to the plane of the perinæum. In this way, and in this way only, can the perinæum be truly restored, and from this operation only can it be hoped that the restoration will stand the attacks of subsequent labours, as a large number of my restorations have done. I do not know of one having been torn a second time.

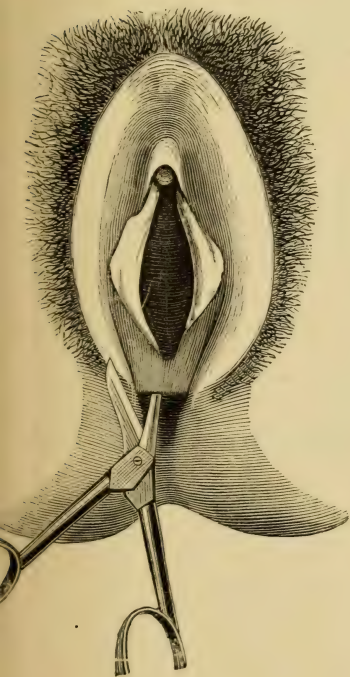


FIG. 145b.—Splitting the Recto-Vaginal Septum.

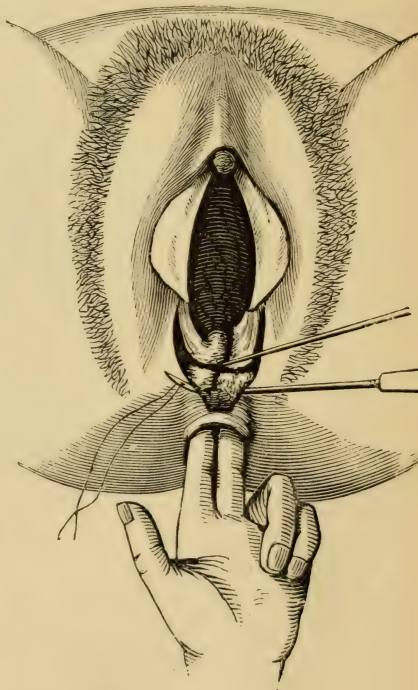


FIG. 145c.—Passage of the Suture.

These three drawings are taken from those in the 'British Gynæcological Society's Journal,' August, 1889. They were made for Dr. Fancourt Barnes, by Professor Vulliet of Geneva.

‘Having the folds of the buttocks pulled firmly apart, so that the cicatrix is put on the stretch, I enter the point at its extreme end on one side, and, keeping strictly to its line, I run through to its other extremity. The incision is about three-eighths of an inch deep, and it forms two flaps, a rectal and a vaginal. From each end of the incision it is carried forwards into the tissue of each labia for about an inch, and

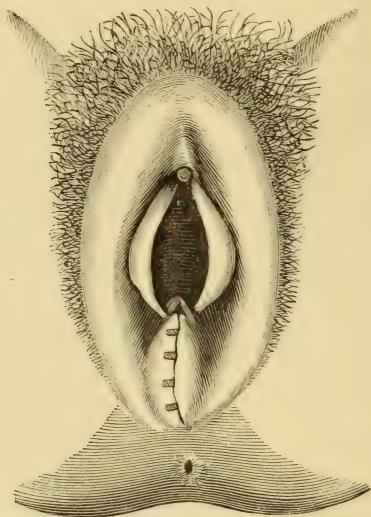


FIG. 145*d*.—Wound closed.

again backwards for about a third of an inch, making a wound like this—

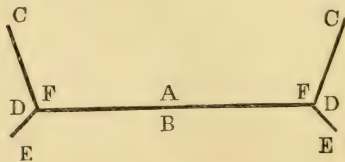


FIG. 145*e*.

‘The vaginal flap A is held upwards (the patient being on her back), and the rectal flap B being turned downwards, the angles AFC being pulled by forceps diagonally upwards and inwards towards the middle line, and the angles B D E being pulled downwards and inwards. The lines C E thus become straight, and the wound takes this form—

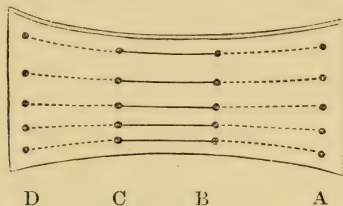


FIG. 145f.

‘By means of a stout-handled and well-curved needle the silkworm gut sutures are entered on one side about an eighth of an inch within the margin of the wound (so as not to include the skin) at the dots A. They are buried deeply in the tissue as far as B, and then the needle is made to emerge so as to miss the angle of the wound. The needle again enters at the large dots C and emerges at the dots B. By thus missing the upper or deep angle of the wound between B and C, the two great and divided masses of the old perinæum, which lie in the parallelograms respectively bounded by the lines of large dots A—B and C—D, are accurately adapted. The rectal and vaginal flaps respectively point into the rectum and vagina, and like an old-fashioned flap-valve prevent noxious material entering the wound. The resulting mass of perinæum is amazingly large; union is almost inevitable, for I have failed only twice in many hundreds of cases, and then because there had been previous denuding operations. The resulting cicatrix is absolutely linear, and so resembles the natural raphe, that in three or four months after the operation it is

quite impossible to determine, from the appearance of the parts, that the perinæum has ever been injured, for there are no stitch-hole marks left to tell the story. The pain experienced after the operation is trifling compared to the old method of quilled or shotted suture. I leave the stitches in for three or four weeks, and take great care that the rectum and vagina are washed out twice daily.'

Amputation of the Cervix.—This operation should be the last resort of the surgeon for prolapse, and mainly performed on those advanced in life. The best method of removal is by means of the knife or scissors (not the *écraseur* or gal-

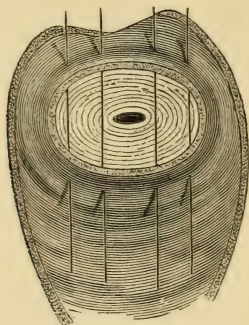


FIG. 145g.—Amputation of the Cervix (Sims).

vanic wire—Emmet and Sims). The stump is covered with the vaginal tissue (Sims) by means of silver sutures, four to six, passed from before backwards through the cut edges of the vagina. Thus we leave a small oval opening corresponding to the cervical canal. Dr. Emmet draws particular attention to the evils which accrue to the woman if the stump is allowed to heal by granulation. These are partially due to contraction or closure of the uterine canal and subsequent re-enlargement of the uterus, and partly to reflex irritations and the effects on nutrition.



FIG. 145*h*.—Clover's Crutch.

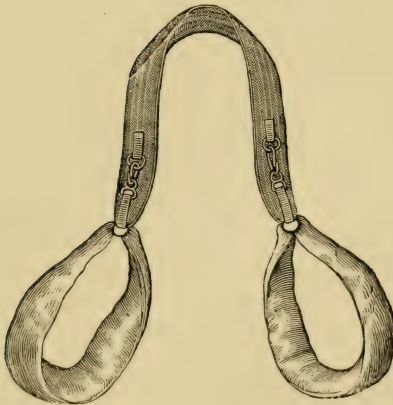


FIG. 145*i*.—Dr. Howard Kelly's Leg Support.

Portable Leg Supports for use in Perinæal Operations and for Emmet's Operation. Both obviate the necessity for assistants.

Elongated Cervix, Complicating Prolapse of the Uterus or Vagina.—To enter into the various matters in dispute regarding the relation of the hypertrophic elongation of the cervix uteri to prolapse of the uterus or vagina, is completely outside the scope of such a work as this. I shall simply limit any observations to such practical points in the etiology and diagnosis of the affection as it is requisite for every student and practitioner to know. The following facts, which are now generally accepted, have a practical bearing on the management of this condition :

1. The cervix uteri may be hypertrophied and lengthened out, either in its infra-vaginal or supra-vaginal portions. Whether this elongation is a primary growth (Huguier), independent of any dragging action of the prolapsing vagina and bladder, or is a consequence of this latter, is a matter of dispute. We have other views—as, for example, that of Taylor—that it is the result of non-involution of the uterus after labour, when the uneffaced infra-vaginal cervix drags on the non-glandular isthmus and draws it out. Dr. Taylor does not believe in the commonly accepted doctrine of the effacement of the glandular cervix during pregnancy. He is of opinion that it is simply hypertrophied and temporarily expanded.

2. Elongation of the infra-vaginal portion of the cervix is not, as a rule, attended with prolapse. The fundus remains at its proper level in the pelvis, nor does the os descend so far as to protrude. There is a peculiar elongation of the anterior lip accompanying this condition, known as ‘tapiroid.’

3. Hypertrophic elongation of the supra-vaginal portion is, sooner or later, associated with prolapse and procidentia of the uterus and bladder. There are here two principal factors—growth and traction : which is the initial process we will not attempt to say. It would seem rational, that traction and growth may each have an independent share

in the early stages of the distortion. It is difficult to define the exact spot where the 'vicious circle,' as Dr. Goodell aptly terms it, commenced.

4. Eversion of the lips of the os uteri, with exposure of the cervical canal, and laceration of the cervix, are frequent attendants on this form of prolapse of the womb.

Causation.—The most frequent causes of hypertrophic elongation of the cervix are: subinvolution of the uterus after labour; injury to the cervix during labour, and laceration of the cervix (in these two latter conditions we find the two associated states which usually produce hypertrophic change, viz., hyperæmia and hyperplasia); fibroid tumours; pelvic adhesions; uterine displacements; laborious occupations.

Treatment.—Replacement and support, and similar operations to those resorted to in ordinary prolapse; removal of the cervix by amputation, by means of the knife, galvanic knife, galvanic wire, or écraseur. The operation of Sims I have already referred to.

ASCENT OF THE UTERUS.—The uterus recedes from the reach of the examining finger under two important conditions: (1) pregnancy—this ascent of the uterus and recession of the os uteri is noticed as the uterus enlarges from the fourth month; (2) the uterus is pushed or drawn out of position by a pelvic or abdominal growth, which has connections either with the uterus directly, or indirectly, through some of its pelvic supports. It is well to bear in mind, in practice, that this recession of the uterus may be associated with (a) pregnancy; here we have (after the third month), the other local signs of pregnancy; (b) ovarian tumours—frequently in ovarian disease the uterus is not only drawn up from the pelvis, but the cervix is shortened, and the os uteri may be felt almost on a plane with the vaginal roof; (c) fibrous and fibro-cystic disease of the uterus—the cervix uteri is frequently nipple-shaped, mov-

ing, like the nipple on the breast, over the fibroid mass which is felt beneath; (*d*) abdominal tumours (springing from or connected with the abdominal viscera), as hydatid tumours, cystic growths, malignant disease; (*e*) peritoneal effusion (hæmorrhagic, serous, or purulent), pelvic and abdominal, with consequent adhesions; (*f*) pelvic tumours, occurring in connection with the rectum or vagina or in Douglas's space. It is a matter of considerable importance in arriving at a diagnosis that we note ascent of the uterus, and determine its cause.

Rectocele associated with prolapse has been treated by Reamy by an operation, the principle of which is shown in the annexed cuts. The desired extent of surface of the posterior wall of the vagina is denuded, as shown in Fig. 145*j*, two arms of the wound being carried upwards and outwards at each side of the cervix. Catgut ligatures are used. A most important suture is that shown by the dotted lines; this

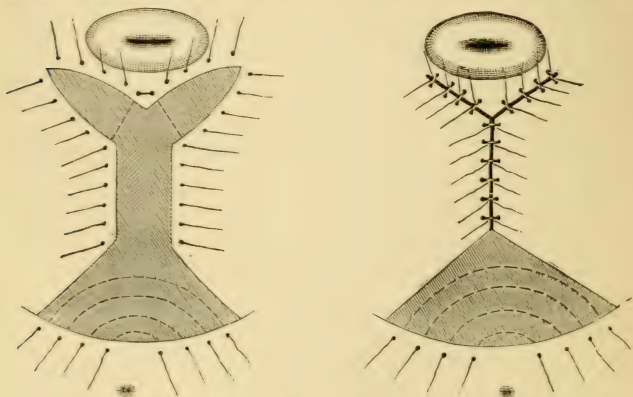


FIG. 145*j*.

suture is carried from the angle formed by one extending arm with the denuded surface on the posterior wall, to the angle of undenuded surface beneath the cervix. It is brought out here and reintroduced at a corresponding point of the apex, about one-fourth of an inch from its point of emergence, and is carried across the denuded arm. It is brought out quarter of an inch from its margin at a corresponding spot (in the opposite angle) to the point of entrance. This suture brings the three angles of the wound together.

CHAPTER XII.

INVERSION OF THE UTERUS.

By inversion of the uterus we simply mean a turning of the uterus inside out. It is partial or complete, acute or chronic. There are two stages of partial inversion (Crosse): (1) *depression*, (2) *introversion*. The fundus is received into the cavity of the uterus, ultimately reaching to the os uteri; the intruding fundus is grasped by the uterus, and the process of intussusception is continued until the extrusion of the fundus from the os uteri occurs. Once this has happened, the protrusion of the fundus and body of the uterus from the os uteri may continue until the cervix and lips of the os uteri itself are inverted.

Inversion may be met with in practice either as a sudden occurrence or as a chronic condition. The former accident is more fully discussed in works on 'Midwifery.'

The essential condition—as it always is the predisposing element—in inversion, is an atonic state of the uterine parenchyma, favouring relaxation of the muscular fibres. This leads to partial prolapse of a portion of the uterine wall, and is associated with an irregular contraction of the surrounding muscular tissue. The prolapsed portion is treated by the uterus as a foreign body, like a piece of placenta, or the hand; it excites contractions which end in expulsion of a part or the entire of the fundus. This view (Rokitansky) is not inconsistent with the possible and occasional origin of the inversion at the cervix uteri (Taylor and Klob), which is inverted and protrudes into the vagina.

Causes.—Atony of the uterus, in whole or part, is pro-

duced by (1) parturition, (2) tumours and polypi, (3) placental adhesions, (4) hæmorrhage. The process of traction of the uterine wall is associated with the first three of these; hæmorrhage is a consequence of all three. If there be general relaxation of the uterus, such an exciting cause as any violent exertion, or severe coughing, might be sufficient to produce a slight inversion or depression, and give the first impetus to the morbid process. It would appear that inversion of the virgin uterus may take place (Puzos, Boyer, Baudelocque, Langenbeck). Dr. Goodell believes that ectropion of the cervical mucosa may occasionally follow the general relaxation consequent upon sterility, and masturbation in young girls, and thus start the inversion process.*

Signs and Symptoms.—These are: the presence of a tumour, generally not voluminous, felt in the vagina, simulating polypos, attended frequently by hæmorrhage, either constant or periodical; bearing-down pains; pain occasionally in walking; perhaps rectal and vesical distress. Anæmia is a common attendant from the associated loss of blood and general debility.

Differential Diagnosis.—The main proofs we rely on that a tumour in the vagina is an inverted uterus are the following: (1) the presence of a soft, readily bleeding and sensitive tumour; (2) the absence of the uterus from its position in the pelvis; (3) the absence of the normal uterine opening, and the impossibility of passing the uterine sound farther than the neck: the finger feels at the summit of the tumour the cervix, perhaps thinned out to a ring.

We examine thus a case of suspected inversion, remem-

* In a communication to the Obstetrical Society of London, May 5th, 1886, Dr. Aveling thus classified inversion:

Automatic or	{	Result of inherent muscular contraction. Placental—
Fundal.		
Systemic	{	Result of extraneous (abdominal and respiratory) muscular contractions when there is inertia of the body and relaxation of os.
(generally Cervical).		
Mechanical	{	Result of blows; manual compression; abdominal pressure from viscera or fluid or gas; traction exercised on or by cord or tumour.
(Propulsive		
or Extractive).		

bering the liability to mistake it for polypus or procidentia, in the case of partial inversion, for intra-uterine fibroid.



FIG. 146.—Conjoined Examination—Inverted Uterus.

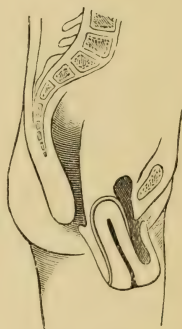


FIG. 147.—Prolapsus Uteri (Schroeder).

In Complete Inversion.—Having made a careful digital examination of the size and consistence of the tumour, we explore it through the rectum and detect the absence of the uterus. By conjoined examination we confirm this. We take the uterine sound, and find it arrested at the neck of the uterus, round which we sweep it: it may pass just inside the cervix for the extent of an inch or an inch and a half. The sound is now passed into the bladder, and the

finger into the rectum, and by the recto-vesical examination the fact that the uterus is absent is ascertained.

In Partial Inversion.—This is much more difficult to diagnose. The difficulty is to distinguish it from an intra-

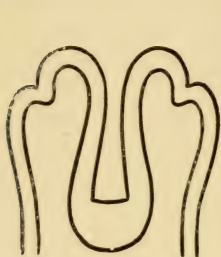


FIG. 148.—Outline Diagram of Complete Inversion (adapted from Thomas).

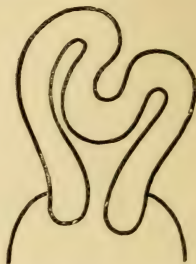


FIG. 149.—Outline Diagram of Partial Inversion (adapted from Thomas).

uterine fibroid. By the conjoined examination we may detect the absence of the fundus. On passing the sound it

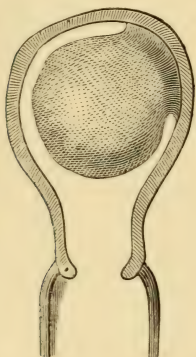


FIG. 150.—Submucous Fibroid.



FIG. 151.—Outline Diagram of Polypus at summit of uterine cavity (adapted from Thomas).

is arrested by the prolapsed portion of the uterus, which is sensitive. In the fibroid growth, the uterus is enlarged,

and the sound passes farther than in the normal uterus, while the tumour is painless. The history of the two is different; the fibroid growth is slow—there is no relation to parturition; inversion occurs, as a rule, suddenly, and the uterus is sensitive.

Prognosis.—The prognosis must be always grave. Even admitting, says Thomas, the undoubted authenticity of the cases reported, spontaneous reduction must be regarded only as a curiosity, and not as a process to be anticipated.



FIG. 152.—Outline Diagram of Polypus of Cervix (adapted from Thomas).



FIG. 153.—Outline Diagram of Polypus with long pedicle attached to the summit of uterine cavity; the cervical canal contracted on pedicle (this may lead to partial inversion).

The patient may be worn down with pain and exhausted by hæmorrhage.

Treatment.—This may be briefly considered under three heads: (*a*) palliative; (*b*) taxis and pressure; (*c*) amputation.

Palliative.—Strong astringent preparations of alum, tannin, perchloride and persulphate of iron, matico, hamamelis; daily injections of very hot water; ergot given internally.

Aran, in very bad cases where amputation was indicated, used the Paquelin cautery, or potassa cum calce, to the surface of the mass. In this manner the course of nature, when the uterine mucous membrane thickens and becomes like skin, is imitated. The patient lives on without much pain or inconvenience.

Taxis and Pressure.—This must in very old cases be assisted by the local application of belladonna, in the form of ointment and suppository; the previous dilatation of the vagina by the hydrostatic bags; and possibly two or three small and superficial longitudinal incisions through the tissue of the cervical ring. But the great danger of the employment of force has to be remembered; the vagina may be ruptured, or fatal peritonitis result. ‘A small hand,’ says Thomas, ‘a cautious, unexcitable mind, and constant vigilance, during all the efforts by taxis, must be combined with thorough knowledge of the subject, to avoid the imminent danger . . .’ ‘I confess that I should prefer to trust a patient, in whom I feel great interest, to the operation of abdominal section (for the reduction of the tumour), than to that of prolonged taxis at the hands of a rough, unintelligent and inexperienced practitioner.’ If this be Dr. Gaillard Thomas’s deliberate opinion, after a personal experience of nine cases of inversion, it is not necessary to dwell on the care and caution with which attempts at reduction of the chronically inverted uterus must be made.

The ordinary practitioner is not likely to attempt this operation without mature consideration and careful consultation. The principal obstacle to be overcome is the constriction of the cervical ring, through which has to be returned the enlarged and hardened uterine body. I shall only refer here to two modes of manipulation. Few surgeons would attempt the bold step of Thomas, viz., abdominal section, in order to dilate the cervix from the

peritoneal side with a sort of steel glove-stretcher. In fact, in practice, it would be far better to trust to continuous pressure, than run the risk of any dangerous force or prolonged manipulation. Before an attempt at reduction be made, the rectum and bladder should be emptied, and an anæsthetic administered. The nails of the operator's hands should be carefully pared, and the operating hand well oiled. One hand must be laid on the abdomen, over the situation of the ring of the opposing cervix. With this counter-pressure is maintained against the hand operating in the vagina. The axiom so strongly insisted on by the

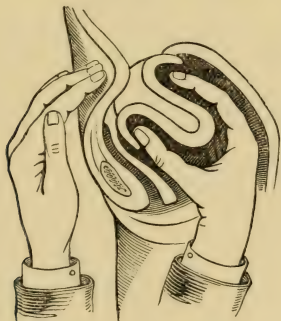


FIG. 154.—Reduction of Inverted Uterus (Emmet).

late Dr. McClintock of Dublin is to be remembered, of returning first the part which has inverted last. Dr. Emmet's plan is then adopted. The patient is placed in the lithotomy position; the inverted uterus is grasped between the finger and thumb of the right hand; the fingers of the left hand maintain steady counter-pressure on the abdomen. The inverted fundus is pushed steadily upwards with the right hand, while the fingers are used to dilate the cervix. If the case be comparatively recent, the plan of dimpling with the fingers the fundus, and forcing the indented wedge

thus formed into the cervical ring, and so overcoming the resistance, may be tried. Repositors of different kinds have been tried. The figure shows the cup-repositor of Professor White. The cup is steadied with the right hand against the fundus, and the force is applied by means of a spiral spring, which the operator presses against the chest, counter-pressure being maintained by the left hand over the cervix, on the abdomen.

Pressure.—If from the duration of the case, or from the experience of moderate manual efforts at reduction, we

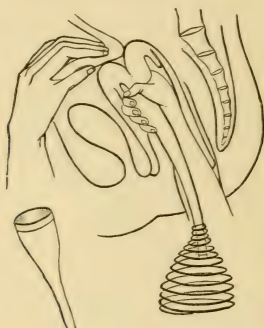


FIG. 155.—White's Cup-repositor (Thomas).

deem it unadvisable to proceed with the taxis, it is better at once to try continuous elastic pressure. Aveling, Barnes and Dr. Braxton Hicks are the prominent advocates for continuous pressure in this country. The stem and cup of the former may be used for the purpose. The curved stem has at one extremity a cup-shaped disc of rubber, or a hollow cup of caoutchouc. The other end of the stem has attached to it four strong rubber bands, attached to the abdominal belt, which serve to maintain the pressure on the fundus. By tightening the back or front bands, the direction of the

pressure is changed. Counter-pressure is secured by an abdominal pad placed under a broad flannel roller. The position of the cup and the direction of the stem are watched from day to day. It is well to pack carefully the vagina, round the inverted uterus, and also the cup when applied, with a tampon of antiseptic wool soaked in oil. Dr. Barnes advises periodical attempts at reduction with the hand, under chloroform, when the cup is removed. Should the continuous pressure give rise to pain, or there be any sloughing, it must be relaxed, and an interval of rest permitted. Its tolerance may be assisted by the administration of bromide of potassium and chloral. The application should be made between the menstrual periods. Should a tumour complicate, or be the cause of an inversion, we must remove the tumour and then endeavour to rectify the inversion.

Dr. Aveling has treated and cured eleven cases of chronic inversion by his sigmoid repositor. Each case took on an average 40 hours for its cure—the longest time occupied being $54\frac{1}{2}$ hours, and the shortest 9 hours. The following are Dr. Aveling's instructions for its use:

Directions for Using the Sigmoid Repositor. — Having diagnosed inversion, determine by touch the size of the fundus, and select a cup of proportionate size. It should be in diameter slightly less than that of the fundus. Next apply the belt round the waist, and then the braces over the shoulders, and fasten them by safety-pins to the belt. This should be done in such a way as to leave room to pass the tapes, to which the rings are attached, between the pin of the safety-pin and the belt. Now the cup of the repositor should be applied to the fundus uteri, and held firmly in position by an assistant while the rings are adjusted, two being taken in front and two behind. The ends of the tapes should next be passed between the safety-pins and

the belt, parts of the tapes drawn through, and a knot made at the ends to prevent them slipping back. Tension may be lastly exerted by drawing the tapes up through the pins and fastening them at any point by tying a loop. This loop can be easily pulled out and retied, should more or less tension be required. Care must be taken to have the tension equally distributed; for, if the front bands be tighter than the back, there arises the fear of the cup being slipped back off the fundus; and the opposite may occur if the posterior bands be tighter than the front. The india-rubber bands passing to the front should be carefully laid outside the labia and packed with cotton-wool. If the patient be restless or complain of pain, morphine may be administered. She should be carefully watched, and the urine drawn by catheter when necessary. It is difficult to lay down any rule for tightening and loosening the tapes. This will be determined by the practitioner, who must judge by the existing tension, and the tolerance of it by the patient. In my last case, re-inversion was accomplished without the tapes being touched after their first adjustment.

Reduction takes place by the cervical method. Pressing on the fundus causes counter vaginal traction on the cervix, making it unroll gradually until the inner os is reached, where a little delay is caused by its being less dilatable. When this point is passed, the body of the uterus soon opens, and admits the cup. The last step must take place rather suddenly, for all patients say they feel that something has 'given way,' and comparative comfort is the result.

When the inversion has been reduced, the sooner the cup is withdrawn the better, for the cervix immediately begins to close round the metal stem, and the cup becomes firmly grasped in the uterine cavity. The most easy way of removing the cup is to tilt it on end, and bring it through the os as you would a button through a button-hole. If it

has been long retained an anæsthetic will assist. When the cup has been removed, pass a thick sound into the uterus, and, by pressing the point of it forward, the rounded fundus will be felt through the abdominal walls. Being satisfied that complete re-inversion has taken place, syringe out the uterine cavity with iodine water at 120° Fahr., which will cleanse its surface and make the whole organ contract.

‘I think,’ says Aveling, ‘after considering these facts, you will come to the conclusion that every case of chronic inversion of the uterus can be cured by sustained elastic pressure exercised in the right direction; and I hope you will not think me too sanguine when I state my belief that the mutilation of a woman, by removing her uterus, will no longer be necessary in consequence of the impossibility of replacing this important organ when inverted.’*

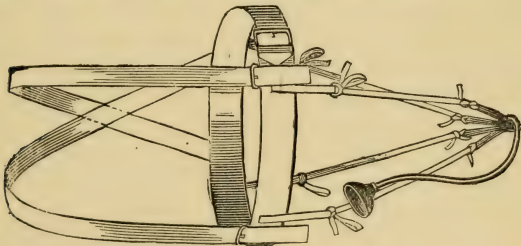


FIG. 155a.—Sigmoid Repositor.

Amputation.—The question of amputation I do not enter into in this work. The propriety of considering it, and the risks it entails, will be found fully discussed in the larger treatises on this subject. I would wish, however, to quote the view of Dr. Emmet in regard to this *dernier ressort* for inverted uterus. Having discussed the chances of success by various methods of reduction, he says: ‘With our present knowledge I would not advocate the operation unless the

* From abstract of paper furnished to the *Gynecological Journal* (vol. ii., p. 255), by Dr. Mansell-Moullin.

life of the patient was in jeopardy, and the choice rested between it and amputation.' The best plan to adopt, if we decide on amputation, is to take the preliminary precaution against hæmorrhage of applying a ligature to the tumour a few days previously, and then amputate either by wire cautery or scissors or *écraseur*, applying some iodoform or iodol to the exposed stump subsequently.

At the meeting of the Gynecological Society, May 23, 1888, Dr. Fancourt Barnes recorded a case of inversion of the uterus, of four months' standing, successfully restored in eight hours by means of Aveling's repositor.

Jaggard has recorded a case of twenty months' standing reduced, after thirty-three days, by colpeuryesis.

Noeggerath's method consists in the indentation of one corner first, assisted by counter-pressure over the ring of inversion from above the pubes.

CHAPTER XIII.

POLYPUS UTERI.

AT the risk of being considered irregular and unsystematic, I shall deal with uterine polypi out of their proper order in the category of uterine new growths, and consider them immediately after inversion of the uterus. My object is simply to impress still more strongly on the student the differentiation of these two affections.

Polypi we may classify according to the elementary tissues from which they take their origin—celluloid, glandular, fibrous, placental.

The first variety consists principally of cellular tissue and mucous membrane; the second of hypertrophied follicles and connective-tissue; the third of muscular and connective-tissue elements, the former preponderating; while placental polypi have their origin in portions of placenta that have been left in utero, and which, becoming organized and incorporated with the uterus, form polypi.

Fibroid polypi spring from the body of the uterus, and are at one period of their growth submucous fibroids, but they assume the form of polypi through extension into the uterine cavity, and by the gradual narrowing of the base of attachment into a pedicle.

Diagnosis.—This will depend on the size and position of the polypus. Whenever obscure menorrhagia or metrorrhagia occurs or persists, especially if the discharge continues foul and offensive, and we are suspicious of polypus, there is but one safe rule, which is, to dilate and explore the uterus, and not to persevere with

palliative treatment.* We may be further guided to the suspicion of polypus if there be some enlargement of the uterus and congestion ; and if the fundus feels enlarged, and the cervix dilated. The first step towards the diagnosis and treatment of polypus is dilatation of the cervix. The facility with which we can feel the growth will depend on its size and position. At times this is comparatively easy ; occasionally it is very difficult. A large extra-uterine polypus is felt at once with the finger ; the principal danger is that we may confound it with inversion of the uterus. We are not so likely to mistake it for prolapse.

We may thus tabulate the positive and negative signs of uterine polypus :

POSITIVE SIGNS.—1. A tumour which has increased in size slowly, frequently growing from the cervix uteri, pyriform in shape, having a narrow neck or pedicle, insensible to touch, not painful when punctured, and varying in size.

2. It may either be felt with the finger in utero, after dilatation of the cervix, and its size determined, or the uterine sound may be passed round its neck or pedicle.

3. Hæmorrhage is a constant accompaniment of polypus ; at times there is a foul sanious discharge.

4. The tumour is either situated in the uterus or the vagina ; if in the uterus, the sound passes into the uterus from two and a half inches upwards, the cavity of the uterus being enlarged to accommodate the growth ; if in the vagina, we can trace the pedicle of the polypus to the cervix, and the uterine sound passes above this, inside the cervix, for over two and a half inches.

5. There is no opening at the dependent portion of the tumour ; the encircling ring of the cervix is traced below it or around the pedicle, and the uterine sound can be passed

* It must, however, be remembered that a small polypus may be concealed in utero and cause severe dysmenorrhœa without the occurrence of menorrhagia or any perceptible uterine enlargement.

inside the cervix, between the wall of the uterus and the tumour.

6. By conjoined examination the fundus can be felt in position, and has no marked depression; thus the size and consistency of a polypus may be estimated.

7. Fibroid polypus (likely to be mistaken for inversion) may occur in nulliparous women and virgins.

IMPORTANT NEGATIVE SIGNS.—1. Absence of os uteri.

2. Absence of pain.

3. Absence of sensitiveness.

The *symptoms* of polypi are hæmorrhage, uterine pain, leucorrhœa, vesical and rectal distress,—dependent upon the size of the polypus and its position; dragging pain in the back, and perhaps difficulty in walking if the polypus be large, and, occasionally, dysmenorrhœa.

Treatment.—Before removing a polypus we may have to endeavour to restore the patient's general health, shattered by the long-continued strain and loss of blood. This is done by preliminary rest, the use of astringents locally, and dilatation of the cervix by means of the larger bougies, by tents, or Barnes's dilator.

The treatment for polypus is removal. We may remove a polypus by means of the *écraseur* or the galvanic cautery wire. Small polypi may be twisted. Quite recently, in exploring a polypus, and passing my fingers to the cervix uteri, I felt an extremely narrow pedicle; by twisting the mass, which was about the size of an orange, with my fingers, it came away in my hand. We require for removal of polypi an *écraseur*, a volsellum, a tenaculum, a polyp-tome, if the polypus be large. Dr. Atthill uses, in some cases, small cannulæ for securing the wire on the pedicle of the polypus.

Dr. Atthill thus describes his method of employing the cannulæ: 'The *écraseur* differs from an ordinary long wire

écraseur only in having the end modified so as to allow of the passage through it of two slender silver tubes identical with those so well known as "Gooch's cannulæ." These, armed with a wire of any strength, can be passed with ease up to the base of any polypus; they are then to be separated, and while one is held firmly, the other is to be carried round the pedicle; this can always be accomplished when a silk or hempen ligature is used. It is very difficult indeed to carry a stiff wire round a large tumour with

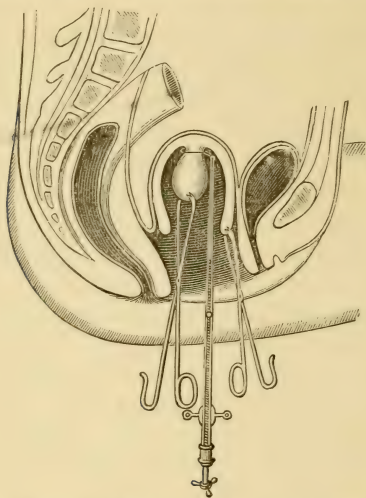


FIG. 156.—Removal of Polypus by *écraseur* and volsella (adapted from Atthill).

them, yet I have done it, and cases from time to time occur in which this method proves useful. Having once got the wire round the tumour, the cannulæ are to be passed through the openings in the extremity of the *écraseur*; the *écraseur* is then to be pushed up, guided by the cannulæ, till it comes in contact with the pedicle of the polypus; the cannulæ can then be withdrawn, and the wire being attached to the

écraseur, the operation is to be completed as if we were using an ordinary wire écraseur. This is, in point of fact, an adoption of the cannulæ of Gooch to the écraseur.'

To remove a polypus, if it should be intra-uterine, the uterus should be previously dilated. No anæsthetic is necessary. The removal should not be sufficiently painful or distressing to require it. In the instance of some large polypi in nulliparous women and virgins, it may be well, for a few days previous to operating, to distend the vagina with a Barnes's larger-sized hydrostatic bag. The woman may be given a dose of bromide of potassium the night before the operation. She is placed in the lithotomy position on a suitable couch or table, and by means of the fingers or a notched director the wire is carried well up to the pedicle of the tumour; after which manœuvre, the écraseur having been pushed as far as the neck of the polypus, the wire is gradually tightened. It can be now adjusted to the pedicle, as near as possible to the uterine wall, without injury to the latter. The tumour is then removed by slowly tightening the wire in the usual manner.

Any complaint of pain would be an indication of injury to the uterus.

When severed, and loose in the vagina, it may be removed by an ovum forceps. If the polypus is very large, and cannot after detachment be brought away, or if it endangers the perinæum and its vessels, it must be divided with a polypotome. Sir J. Y. Simpson devised a cutting-hook for this purpose (Simpson's polypotome). The perinæum has been incised at either side of the mediary line, in order to enlarge the outlet, so as to facilitate the removal of a large polypus.

I exhibited a large polypus at the Obstetric Section of the Academy of Medicine in Ireland, which I removed from the uterus, and in which considerable difficulty was

experienced in its extraction from the vagina in a nulliparous female. I then referred to the want of some instrument

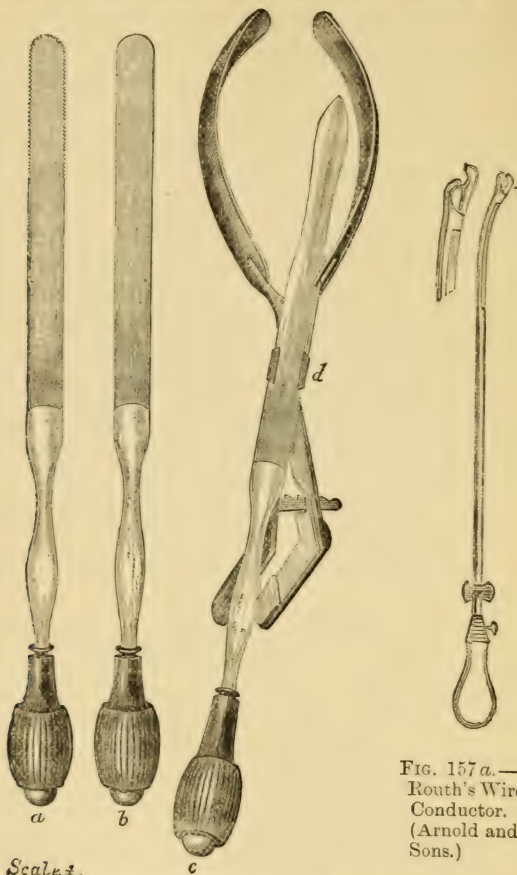


FIG. 157 a.—
Routh's Wire-
Conductor.
(Arnold and
Sons.)

Scale 1/2.

FIG. 157.—Author's Polyprome and Forceps
Saw. (Mayer and Meltzer.)

(which would combine the purpose of forceps and cutting-knife) for the safe removal of these large growths without

the necessity of incising the perinæum, or the risk of lacerating it. The application of the *écraseur* to divide the tumour into segments is tedious, and at times difficult. With the aid of Messrs. Mayer and Meltzer, I devised the instrument shown in Fig. 157. This polyptome consists of a straight forceps, lightly made with slender blades, yet sufficiently strong to compress the tumour; there is a groove cut in the lower fourth of these blades, and they are so shaped inside, that the edge of the movable knife or saw glides easily along the blade. They lock readily on a revolving pivot (*d*), and the same lock carries a short sheath, through which the knife passes. The handle of the forceps is at right angles to the shank, and each half is connected by a rack and pinion-bar. Three cutting-blades accompany the forceps, one (*c*) shaped somewhat like a dagger, so as to readily pierce any tumour, and cut from the centre outwards; a second (*b*), broad and flat, with a rounded edge; the third (*a*), a saw. These are made of the finest tempered steel. The tumour can thus be grasped and cut through the centre, the blades either turned round in the vagina, the knife being withdrawn, or the forceps may be applied in a different direction, and the mass cut in four or more pieces. These segments may be separately withdrawn. After removal of the growth it is well to give a few doses of ergot, and occasionally to wash out the vagina with permanganate of potash or bichloride of mercury solution.

Dr. Routh's Wire-Conductors.—The wire-conductors (see Fig. 157*a*) consist of two parts; first, an internal solid portion, fixed to a handle; and second, an external hollow tube, which can be moved up or down on the first, but capable of being secured at any point by a pin inferiorly near the handle.

The distal extremities of each part is terminated by a concave end, the concavities facing each other, so that when brought together they constitute an aperture through which the wire may pass, and hang below the handles. Two of these directors together, and so connected, are used. Placed together side by side, they are pushed up to any

desired point, armed with the wire, the ends of which should project outside the vagina. One director is now held *in situ*. The other director, carrying the wire along with it, is brought round the tumour to the other side of the first one. Both directors are now held together *in situ*, and the free ends of the wire, hanging out of the vagina, can be passed through and fixed in the *écraseur*, which is brought up to the distal end of the wire-directors.

The pins below the directors are now loosened, the outer tube pulled down, and so both wire-directors are liberated from the wire, and may be removed, and the *écraseur* can act. The directors are generally six in number, with varied curves to meet any irregular projections of the tumours.

CHAPTER XIV.

UTERINE INFLAMMATORY STATES, ACUTE AND CHRONIC.

Hyperæmia (Active and Passive).

Acute—Metritis and Endometritis (Cervical and Corporeal).

Chronic—(a) Endometritis (Cervical and Corporeal).

(b) Chronic Hyperplasia (syn. Sub-involution,
Chronic Metritis).

(c) Catarrhal inflammation of Cervix.

(d) Granular degeneration of Cervix.

THIS classification is by no means strictly exact; but it appears to me the best that can, for clinical purposes, be placed before the student. In this work the notice of these states must of necessity be brief.

HYPERÆMIA.—The vascular system of the uterus is subject to considerable fluctuations in its blood-supply. This we would expect, not alone from its anatomical peculiarities in the distribution of the uterine vessels and the erectile muscular tissue which surrounds them, but also from the influences to which the uterus is subject periodically: such as menstruation, coitus, ovarian excitement, morbid growths, displacements, peri-uterine inflammations. Nor can we ignore, in the uterus as elsewhere, the influence exerted on the arteries by reflex stimuli. Hardly otherwise can we account for inflammatory mischief arising from some slight exposure to cold, or in some

instances, from the careful passage of the uterine sound and the uterine disturbance which follows mental shock.

Symptoms and Physical Signs.—Such sensitiveness and tenderness are present in these cases as we might anticipate from a slightly swollen and turgid womb. Perhaps there is an exaggeration of the natural secretion, and a tendency to excessive menstrual flux, or some occasional irregularity of the periods, and metrorrhagia; or it might be that on examination we detect a congenital defect, predisposing to stenosis and dysmenorrhea, or a uterine displacement, or small fibroid. The patient complains of pain in the back, and about the pelvis, and inability to walk much or to stand. Very often the sufferers are women who have to stand a great deal, or are occupied in some sedentary work. They may complain at the same time of dyspeptic symptoms. It may be that we discover cardiac or renal mischief, functional cardiac murmurs, and that the urine is of low specific gravity.

Treatment.—General hygienic measures; such rest as can be obtained; avoidance of coitus; change of air; the warm vaginal douche; local depletion; the use of Kreuznach and Kissengen waters;* bromides of potassium and ammonia; the combination, already recommended, of ergotine, quinine, and lupuline; the glycerine tampon (applied with Barnes's introducer, and worn at night); iodine baths; the use of the bath speculum; regulation of the bowels by proper aperients; the saline waters; occasional enemata.

PASSIVE HYPERÆMIA.—If we do not see the case in the earlier stage of hyperæmia, there is very often a protracted history, and the general health has been for some time affected. The same causes as those enumerated in bringing about active hyperæmia have been and con-

* In such hyperæmic and congestive states, acute and chronic, the water and baths of Woodhall Spa, in Lincolnshire, may well be recommended. The extract of *hydrastis canadensis*, both given internally and applied as a tampon, is a useful remedy.

tinue in operation. It is this condition of uterus which, when persistent, leads to general hypertrophy of the uterine tissues, and even to chronic hyperplasia. The same indications for treatment exist as in the active state. We must endeavour to correct any general or constitutional fault, while we control local congestion and subdue irritation.

ACUTE METRITIS AND ENDOMETRITIS.—For clinical purposes we may define this state as that of acute inflammation of the uterine parenchyma and the mucous membrane of the uterine canal. While we cannot separate pathologically the inflammation which attacks the muscular tissue of the uterus and its peritoneal covering from that which involves its mucous membrane, both being very generally associated and intercurrent, still, clinically, this division into acute and chronic metritis and endometritis is an old practical distinction, which for clinical purposes it is as well to preserve. Most frequently the inflammation commences in the endometrium, and spreads to the muscular structure and cellular elements. On the other hand, the attack may begin in the peri-uterine cellular tissue, or the abdominal or uterine peritoneum. In such a manual as this it is better to take these associated conditions together, and discuss them at the same time.

Causation.—Wounds ; injury ; any shocks transmitted to the uterus ; operations ; cold caught during a menstrual period ; septic infection ; ultra-uterine medication ; the use of stem pessaries or the uterine sound ; gonorrhœa ; vaginitis.

Symptoms and Physical Signs.—Rigors ; high temperature ; pain and tenderness in the hypogastric region ; sense of fulness in the vagina, accompanied by heat and sensitiveness ; absence of the vaginal secretion ; viscid discharge from the uterus, changing to purulent—this discharge is at times acrid and irritating to the skin of the vulva. On digital examination the uterus is found enlarged and very sensitive ; the lips of the os uteri have a tendency to gape.

With the speculum the os appears swollen and œdematous; a characteristic transparent and most tenacious mucous discharge fills the os, or at times hangs in shreds from it.

Septic metritis—in its marked preliminary pyrexial symptoms, the great pain, the accompanying peritoneal mischief, and the history of a definite cause, as an operation, injury, septic contagion—is not likely, with the exercise of care, to be confounded with any other affection. The approach of pelvic or general peritonitis is marked by varying degrees of immobility of the uterus, abdominal tenderness, and tympanites. So far as my experience enables me to form an opinion, I may say that I do not believe in any such affection as uncomplicated metritis. I have never seen a case of metritis run its course without some degree of pelvic peritonitis, cellulitis, or endometritis accompanying it.

Diagnosis.—If with the foregoing symptoms we find, on digital examination and the bimanual method, that the uterus is enlarged and sensitive, while the vaginal passage is hot or swollen, we can have no doubt of the nature of the affection.

Prognosis.—This must always be cautiously expressed. Should the inflammation end in abscess, peritonitis, or septicæmia, the issue may prove rapidly fatal. On the other hand, if the inflammation remains localized, and the symptoms yield to active treatment, it may terminate in a few days, or it may pass into a chronic form, leaving the patient with an enlarged (parenchymatous) uterus and endometritis. It is well-nigh impossible to diagnose a metritic abscess. It is hardly necessary to insist on the danger of using the uterine sound in any case of acute inflammation of the uterus or its peritoneal connections.

Treatment.—In acute septic metritis, leeches may be applied (eight to twelve) over the hypogastric region, close

to the pubes ; warm compresses should be used ; spongio-piline, sprinkled with laudanum and belladonna, applied over the uterus ; a thin linseed poultice, covered with oiled silk ; turpentine, mixed with laudanum, laid over the lower part of the abdomen, if there be tympanites. An ointment composed of oleate of mercury and morphia (10 per cent.) with extract of belladonna spread on a piece of linen, and laid on the abdomen, under the moist compress or spongio-piline, will be found of use. A Leiter's temperature-regulator may be worn over the pubes. Aveling's coil of the same tubing, which fits into a cup and stem, and which can be worn in the vagina, is an ingenious application of Leiter's plan. The medicines we rely on are, opium, $\frac{1}{2}$ to 1 gr. doses every third or fourth hour ; quinine, in doses of 3 grs. every third hour, either alone or combined with the opium. If there be high temperature, then repeated doses of 10 to 20 grs. generally reduce it, if the patient can tolerate these ; or Warburg's tincture may be given. The patient must be fed on liquid nourishment, such as milk, chicken-broth and beef-tea. Alcohol should be given, according to the patient's strength, and its effects on the pulse and tongue watched. In the meantime, the vagina should be washed out with warm water, to which some Condyl's fluid or carbolic acid is added, and this repeated every four hours. In simple metritis and in endometritis, the treatment must be regulated according to the severity of the symptoms. The vaginal douche of water, from 100° to 110° ; local depletion, by means of leeches applied to the cervix or the uterine lancet, may be of service ; but as a rule, save in chronic endometritis, it is better to avoid this local tampering. In all cases of acute uterine inflammation, the administration, in the early stages, of a saline is of service : liquor ammonii acetatis, with sweet spirits of nitre ; bicarbonate and citrate of potash ; the saline

mixture of sulphate of magnesia in infusion of roses, are perhaps the simplest and most useful. If the bowel be costive and the tongue coated, the administration of a few grains of calomel at bedtime, followed by a saline aperient in the morning, will benefit.

CHRONIC METRITIS.—The student had better disassociate that condition understood by some gynecologists as ‘chronic metritis’ from the acute metritis which we have just considered. This state is not, as that term would lead him to suppose, the consequence of any acute inflammatory change in the uterine tissues. It is not, or at any rate very rarely is, an *arrested* resolution, as in other inflammatory processes of a chronic character. This remark applies more especially to that form of chronic metritis in which the parenchyma of the uterus is the part principally affected. When the acute inflammation of the mucous membrane has subsided, we find that a chronic state of congestion and catarrh occasionally remains, which becomes aggravated in time. The parenchymatous inflammation that accompanies this chronic catarrh of the cervix or body has arisen independently of any inflammatory change in the parenchyma. It is this hyperplastic change that we have to consider in chronic metritis. At the same time, we cannot, as Schroeder insists, separate from chronic metritis the idea of congestion, swelling, and pain; and consequently the clinical value of the term remains unchanged.

CHRONIC CERVICAL ENDOMETRITIS.—The clinical division of endometritis into cervical and corporeal is of considerable importance, and the old term of ‘endocervicitis’ still retains its clinical significance.

Pathology.—There is inflammation of the cervical mucous membrane and the glands of Naboth; hypersecretion of cervical mucus, alkaline in character; enlargement and elevation of the papillæ, which have the appearance of

granulations, so that the cervix assumes a granular appearance (these granulations bleed readily); abrasion of the epithelium. This condition is commonly and erroneously spoken of in practice as 'ulceration.' It is perhaps the most frequently met with of all uterine inflammations.

Causation.—Gaillard Thomas divides the causes of chronic endometritis under two heads, *Predisposing* and *Exciting*. We may group these thus :

1. Predisposing :

Constitutional (scrofula, tubercle, chlorosis).

Defective diet.

Excessive lactation.

Frequent labours and subinvolution.

Mental causes.

2. Exciting :

Displacement.

Excessive coition.

Exposure to cold during menstruation.

Gonorrhœa.

Vaginitis.

Displacements.

Stenosis of cervix.

Polypi.

Laceration of cervix.

Abortion, miscarriage, parturition.

Symptoms and Physical Signs.—Pelvic pains and back-ache, attended by difficulty in walking; leucorrhœa of a viscid character; vaginitis (occasionally); dyspareunia; sterility, from the impediment to the passage of the semen, and the action of the secretion on the spermatozoa; deterioration in the general health.

On examination by the finger and speculum, we find, generally, the os uteri denuded of its epithelium; perhaps some surrounding abrasions or granular degeneration of the

adjacent cervix. There is occasionally the characteristic viscid discharge blocking up the cervix, and removed with difficulty. Dysmenorrhœa is a not unusual attendant, or a version or flexion.

Prognosis.—As it is the most frequent, so is it often the most obstinate and inveterate of uterine states. It is the experience of every practitioner that endometritis, both cervical and corporeal, yields occasionally to no treatment. Or, even when we have succeeded in altering the nature of the secretion, and have finally arrested it, a lull in the treatment is followed by a return of the old complaint in as aggravated a form as before. The longer the affection has lasted, and the more viscid and stringy the discharge, especially in those cases of malformed uterus, the worse is the prognosis.

Treatment—Local Therapeutic Measures.—As I have already referred to the methods of applying various substances to the interior of the uterus and the manner of dressing the cervix, I shall only enumerate briefly the most efficient means of treating the catarrhal condition of the cervical canal. The first and most important point to decide is, whether the inflammation is localized in the cervix, or involves the fundus. In this we must be guided by the character of the discharge, and the size and sensitiveness of the body of the uterus.

Assuming that the cervix alone is inflamed, our first step should be to secure such dilatation of the cervical canal and os uteri as will permit of the free flow of any discharge, and also allow room for a topical application to the mucous membrane. This is best done by bilateral incisions, as before described, with a Kuchenmeister's scissors.

The loss of blood consequent upon the incisions will be of service. The occasional passage of a uterine bougie will also secure sufficient dilatation. The uterus must be dressed

repeatedly, and the plug of cervical mucus wiped cleanly away, either with a small piece of dry sponge fixed on a sponge-holder, or with a little cotton-wool rolled tightly round the point of a rough uterine probe. The hot vaginal douche should be used three times daily. A little



FIG. 158.—Dressing the Cervix with Sims's Speculum and Uterine Probe.

borax, carbonate of soda, boiled starch, Condyl's fluid, laudanum, or tincture of iodine, may be added to the water. It is well occasionally to deplete the cervix, and about half an ounce to an ounce of blood may be taken. Such therapeutic means as carbolic acid and glycerine, tincture of iodine

and glycerine, chromic acid solution, nitrate of silver, Braxton Hicks' fused crayons, or iodoform, can be used. The nitrate of silver may be applied on a uterine probe, by first fusing a little of the silver salt in a small crucible (Fig. 70) over a spirit-lamp, and then dipping the point of the probe into the cup, so as to get a film of the nitrate of silver on it. But by far the most efficient and, I believe, perfectly safe agent, when applied with due care, is fuming nitric acid. This should be used with cotton-wool, wrapped tightly round a Playfair probe. When applying it merely to the canal of the cervix, it is not necessary to use a canula. Always after applying any of these agents, a glycerine tampon should be passed into the vagina.

General Treatment.—The patient must abstain from coitus; have such outdoor exercise as common-sense will dictate to be suitable to her strength; sufficient rest in the horizontal position is necessary; much standing is to be avoided; change of air, proper tepid bathing of the body, simple yet nutritious diet, moderation in alcohol, long hours of rest, careful attention to the secretions, are all important aids towards curing the disease. The most important medicines are arsenic, quinine, the mineral acids; with the vegetable tonics, bark, columba, gentian, nux vomica. If there be nervous excitement and much pain, the bromides are indicated.

CHRONIC CORPOREAL ENDOMETRITIS.

Pathology.—While it is of the utmost importance to recognise the clinical fact that chronic cervical endometritis *per se* is a frequently occurring affection of the uterus, it must not be thought that endometritis of the body is ordinarily met with apart from the cervical catarrh. On the contrary, every practitioner knows that the corporeal inflammation is nearly always attended by varying degrees

of cervical endometritis. In chronic corporeal endometritis, it happens then, generally, that not only the utricular glands of the body are involved, but also those of Naboth in the cervix. The exaggeration of the natural secretion from the utricular glands is the most prominent sign of the affection. From the account of post-mortem examinations (Scanzoni and Thomas), the mucous membrane is found, at the commencement of this disorder, swollen and reddened ; later on, it is paler and of a gray colour.

The glands are finally atrophied, the mucous membrane is deprived of epithelium, and the deeper layers form sprouting granulations, which, at times, assume the appearance of small polypi.

The cavity of the body is enlarged if the disease lasts for any length of time, and there may be a lining of connective-tissue, which takes the place of the natural mucous membrane.

Causation.—Those causes which operate in producing the cervical likewise bring about the corporeal endometritis. I wish, however, to direct special attention to a few uterine affections with which endometritis is constantly associated, or that it follows.

Subinvolution of the uterus.

Abortion and miscarriage.

Obstructive dysmenorrhœa.

Prolonged lactation.

Flexions.

Gonorrhœa.

Vaginitis.

Symptoms and Physical Signs.—Profuse glairy discharge, at times coloured, and tinged with blood, or purulent and shreddy ; disorders of menstruation ; sterility ; all the symptoms of cervical endometritis in an aggravated form. Frequently there is enlargement of the uterine canal, and

increased sensitiveness of the entire uterus, which is, by bimanual examination, found enlarged.

Treatment.—I have already alluded to the various local applications which may be used for the treatment of this affection. Intra-uterine medication has been referred to, and the different methods of applying absorbent, emollient, stimulant and caustic remedies to the uterine cavity. I have also pointed out the special dangers of intra-uterine injections. It is not necessary to refer to these matters a second time. The practitioner will find that any or every form of treatment will fail in some long-existing cases of endometritis. Even after the curette has been used, or nitric acid applied to the cavity of the fundus, discharge returns, and some of the symptoms persist. Of all the agents enumerated, I prefer the fuming nitric acid, applied with the precautions already insisted on. After an interval of rest, if the symptoms continue, a second application may be called for. Let me briefly state what, in practice, I have found to be the most efficient treatment of corporeal endometritis:

1. General treatment, such as that indicated in cervicitis.
2. Dilatation of the internal os with tents or bougies.
3. Application of nitric acid to the cavity of the fundus.
4. The dull wire curette of Sims used to the cavity, especially if from metrorrhagic discharge there is reason to suspect a granular condition, or fungosities or a polypoid state.
5. This treatment, alternated with other intra-uterine medication, especially carbolic acid and iodine.
6. Depletion of the cervix.
7. The vaginal douche, using with it, occasionally, iodine, borax, carbonate of soda, Kreuznach water, the mother-liquor of the same spa, or that of Woodhall.

8. The persistent use of glycerine and astringent tampons.

9. If there is a displacement, rectifying this, and adjusting a pessary, when the inflammatory state has been treated for some time.

10. Galvano-chemical cauterization.

Dr. G. Apostoli, of Paris, treats chronic metritis by means of the galvanic current, beginning with a weak current at first (20 or 30 up to 80 milliampères at the first sitting), and gradually reaching 200 milliampères. Ten minutes is the time allowed for a sitting. The positive pole he recommends to be placed on the uterus in hæmorrhagic and ulcerative states, the negative in other conditions. At all sittings the strength of the current is to be increased gradually, and, if rest in bed cannot be secured, once a week is often enough to operate, otherwise the galvanism may be applied twice weekly. Coitus must not be permitted. Pregnancy is to be carefully excluded. Any existing or recent parametritis or perimetritis will contra-indicate the treatment. Dr. Apostoli claims for this method :*

1. Its ease of application and harmlessness.
2. The gradual nature of the cauterization, which is always under control.
3. Its chemical as well as caustic action.
4. It may be used either to restrain hæmorrhage or reduce congestion.

(Vide Apostoli's treatment of fibroid tumours.)

SUBINVOLUTION.—As I have always taught students to regard subinvolution of the uterus as chronic metritis or chronic hyperplasia, and as this view is now generally agreed on by leading gynecologists on the Continent, in America, and in the United Kingdom, it is that which I shall briefly represent here. To comprehend the change in the views of uterine pathologists—from the time when

* See Chapter on Gynæcological Electro-Therapeutics for full details of this treatment

Dr. Henry Bennet so able advocated the doctrine of uterine inflammation as a cause of chronic uterine enlargement and other morbid uterine conditions, to the present day, when his views are rather to be regarded as historical records than as matters for dispute—the student must consult the works of Gaillard Thomas, Klob, Scanzoni, Barnes, Graily, Hewitt, and other writers.

Pathology.—The entire organ is enlarged, its walls are thickened, and its cavity increased in size. The student obtains the best idea of the causes of this increase, when he recollects the changes which occur in the tissues—muscular, cellular, lymphatic, and vascular—of the pregnant uterus. After conception, all these tissues are enlarged. The period of complete development is arrived at when parturition occurs. After labour there is a process of ‘retrograde metamorphosis,’ when the uterus, especially during the puerperal month, passes through the series of changes which constitute involution. Absorption of *débris*, fatty degeneration of the muscular tissue, and formation of new elements, are the means by which this change is accomplished and completed, in a period of from six to eight weeks. Should this change be arrested from any cause, we have an absorbed fatty *débris*; enlarged muscular fibres, with embryonic elements of new tissue; hypertrophied areolar tissue; increased size, both of the bloodvessels and lymphatics. While the muscular elements remain thus stationary, or after a little time commence to atrophy, the connective-tissue is increased, and the uterus is arrested in a state of general congestion, with enlarged vessels. According to Finn of St. Petersburg, the hyperplasia of the muscular fibres is an essential part of the process, the augmentation in the connective-tissue influencing it but little. The number of muscular fibres is always increased. There is no difficulty in understanding why

hyperplastic deposits and rapid development of connective-tissue follow. This hyperplasia is the essential pathological condition of the affection. As occurs elsewhere, the connective-tissue growth strangles the vessels, and consecutive atrophy follows. Change in colour and size of the uterus is the result. The last stage is one of contraction and shrinking.

The practitioner is constantly meeting cases in which, with cervical endometritis, there is considerable enlargement and subinvolution of the uterus. In unmarried girls we frequently find considerable uterine enlargement, not myomatous, associated with displacement.

I have at the present time (when writing the second edition) four patients under my care, all having the cavity of the uterus enlarged to the extent of three inches and over, suffering from chronic endometritis. None of the three have had children. One is unmarried, and has a sclerosed state of the anterior wall of the cervix; a second is also unmarried, and suffering from ante flexion; the other two are married, and have suffered from endometritis from girlhood: they never conceived. The chronic congestion—which leads to effusion, hypertrophy, enlargement of the uterus, and hyperplastic change, with cellular tissue formation—may, and frequently does, arise in other ways than as a sequence of pregnancy.

Causation.—Parturition and neglect during the puerperal month; rising too soon after delivery, standing or over-exertion; puerperal peritonitis, or metritis; laceration of the cervix; endometritis, corporeal and cervical, and the causes which produce these states; frequent pregnancies; prolonged lactation; versions and flexions.

Diagnosis.—By digital examination, if the cervix be involved, we detect a rather open os, which is swollen and painful; a sensitive but hard cervix, which has descended

in the pelvis; and the uterus either anteverted or retroverted, more frequently in the former position. By the bimanual examination the body of the uterus is found enlarged, and by careful palpation the fundus is discovered, unless it be retroverted, above the pubes. The uterine sound passes for the extent of three or three and a half inches before it is arrested at the fundus. The history of the case, pointing either to an old endometritis, to recent parturition or abortion, or irregularity in the menstrual flow (either amenorrhœa or metrorrhagia), will confirm the diagnosis. The chance of pregnancy existing must be carefully remembered; and if any doubt exists, it is better to postpone the passage of the uterine sound. There are some *negative signs*, it is well to remember. The cervix is not soft; there is no progressive enlargement of the uterus from month to month; the uterus does not generally enlarge beyond from three and a half to four inches; there is no cachexia; the leucorrhœal discharge, if any exists, is not foul-smelling. With these facts in our mind, we are not likely to mistake chronic hyperplasia for either early pregnancy; or scirrhus of the uterus.

Symptoms.—There is scarcely any symptom, either constitutional or local, attendant upon a uterine affection, that a woman afflicted with subinvolution of the womb may not suffer from. To enumerate these would be to recapitulate all the various local and pelvic pains and reflex disturbances which arise from chronic endometritis and enlargement of the womb, and from displacement. The intensity of the symptoms will depend on whether the fundus alone, or the cervix, or both, are enlarged. The more prominent symptoms usually are: difficulty in walking, lumbar and sacral pain, pelvic distress from pressure on the bladder or rectum, nausea, dyspareunia, and dislike for food, and various nervous disorders. If the fundus be the part

principally engaged, there is very often menorrhagia or metrorrhagia.

Treatment.—If inflammatory conditions of the endometrium are present, these must be treated in the manner already indicated by intra-uterine caustics and medication. The vaginal douche is essential. The uterus should at periodic intervals be freely depleted, and the glycerine tampon used regularly. Gaillard Thomas (after Aran) advises free vesication of the cervix, through a cylindrical speculum which embraces it tightly. Vesicating collodion is used. The patient rests in bed after its application, and a glycerine pledget is worn. The discharge of serum occurs within twelve hours. Any laceration of the cervix has to be closed.

In the treatment of both chronic hyperplasia and cervical endometritis, the iodized pledgets of absorbent wool are often of benefit. One of these iodized balls may be dipped in glycerine and applied to the cervix. It may be retained in position by a tampon of salicylic acid wool and glycerine. But perhaps the most important portion of the treatment consists in attention to the general health, and in securing judicious rest without unnecessary and prolonged confinement, which often leads to a state of chronic invalidism.

Sexual intercourse must be avoided, or only indulged in at long intervals. Weir Mitchell's rest plan may be tried, in the manner already detailed.* To those who can afford it, a course of waters and baths at Kreuznach, Woodhall Spa, Kissingen, or Ems may be recommended; Schwalbach, Barrèges, or Spa, if a ferruginous spa is indicated; Royat, with its arsenical and iron water, and Bourboule with its stronger arsenical springs, are the most valuable arsenical spas in Europe. At all times change of air, temporary re-

* See Chapter on Massage.

sidence by the seaside—and no country is so rich in health-giving seacoast resorts as England—will do much to assist the treatment. Where the patient cannot go to the seaside, the seaweed-essence (Harvey, Margate) already referred to gives an admirable salt-water bath at home.

There is little to add to this general survey of the therapeutics of the uterine-inflammatory conditions dealt with in this chapter. The value of iodoform, both as an intra-uterine dressing and as a vaginal tampon, has been urged by several writers. The occasional relation of syphilis to chronic inflammatory states of the endometrium should not be forgotten. I can most strongly recommend the *tannate of mercury* in all secondary or tertiary syphilitic affections. Both it and the per-cyanide of mercury (as elsewhere advised) are admirable preparations of mercury to administer to women. A pill of

Hydrarg. tannatis, gr. ss. to gr. i.

Quinæ sulph., gr. i.

Ext. gentianæ, q. s.,

to which, if necessary, $\frac{1}{32}$ to $\frac{1}{16}$ of a grain of arsenious acid may be added, will be found a most effectual remedy in chronic or recurrent syphilitic states. I can only repeat here the caution, several times reiterated in this work, that practitioners, in the treatment of all suspicious chronic enlargements of the uterus, should satisfy themselves thoroughly of the condition of the endometrium by the assistance of dilatation, the dull curette, and the microscope. These aids to diagnosis (as well urged by Smyly) become the more necessary when we have

Cystic and follicular degeneration of the cervix.

Shreddy discharges from the uterine canal.

Softness and tenderness of the uterine walls.

Any foul-smelling discharge.

A recurring sanious flow.

The cauterization of the uterine canal with *zinc chloride* as a means of treating chronic enlargement of the uterus has been of late largely practised by Rheinstädter, Dumontpallier, Frankell, and others. The zinc (grs. xxx.—ʒi. to the ounce) is applied twice in the week. The vagina should be carefully protected, and any of the solution that may touch the vaginal wall should be immediately neutralized with bicarbonate of soda.

The practitioner in using zinc chloride will find it safer to adopt the precaution advised in the application of all powerful intra-uterine medicaments, by securing sufficient patency of the cervical isthmus, avoiding excess of the solution applied on the application, and giving due attention to the time of application as regards the occurrence of the catamenial flow.

CHAPTER XV.

LACERATION OF THE CERVIX.

THIS lesion, varying in the number of rents or fissures of the cervix, their depth, and the degree of pouting of the cervical canal, is the consequence of labour. It results most frequently from manual or instrumental interference, and too early rupture of the membranes. In short, it is often the fruit of 'meddlesome' midwifery and hastily conducted labours.

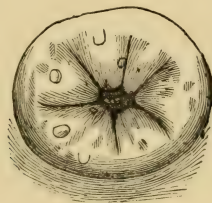


FIG. 159.—Stellate laceration (Emmet).

The rent is generally transverse, for, as Goodell explains, the fissure-line, when lying in this direction, crosses the axis of motion of the uterus, and hence the tendency to separation of the flaps. At other times the fissures are multiple, as in this drawing after Emmet.

According to the same authority, laceration is most frequent on the left side, this being attributed to the position of the child's head in the right oblique diameter, the occiput lying anteriorly, and to the left. The percentage of women

who suffer from uterine disease, who are subject to laceration of the cervix, has been variously estimated by leading American writers at from ten to forty per cent. (Mundé, Ambrose Pallen, Barker, Emmet, Goodell).

That the cervix uteri is more or less torn in a large proportion of labours, all will admit. But a large percentage of such rents close spontaneously, and a considerable number cannot be said to cause either ill consequences or any suffering to the woman.

Practitioners must not, then, take up any extreme view of the necessity for interference in every case of lacerated cervix. Its relation to morbid womb conditions is now generally acknowledged, and we have especially to thank American gynecologists for this, as for many other valuable additions to uterine pathology. We have, however, to avoid being influenced in practice by an exaggeration of the results which follow from a laceration. A careful examination of the uterus will enable us to judge of the case demanding operative interference, and the one which may safely be dealt with by palliative measures, or let alone.

Diagnosis.—Though in the majority of cases there is not any difficulty, with a careful examination, in discovering a laceration of the cervix, still, there is little doubt but that it often escapes detection. This is more apt to occur when there is a considerable abrasion of the cervix; the so-called ‘ulceration’ of the os uteri.

When the cylindrical speculum is used, this is more likely to happen, for we may press the lips of the fissure together, and thus close the torn lips of the mouth of the womb.

An examination for a laceration of the cervix *must be* made in this manner: the woman is placed in the semi-prone position, and Sims’s speculum is applied; a tenaculum is hooked into each lip of the rent, and the two are drawn

forwards, when, if it be a laceration, the raw surface disappears, and the characteristic cleft is left.

Consequences.—Erosion of the os and cervix; eversion of the cervical canal; subinvolution; endometritis; perimetritis; cellulitis; cicatrization of the cervix, and sterility. There is little doubt that it predisposes to epithelioma and malignant disease of the cervix.

Symptoms.—These will depend, in urgency and severity, on the extent and depth of the laceration, and the inveterate character or the intensity of the attendant complications. If the laceration is chronic, and has not skinned over, we find frequently an easily-bleeding cervix, menorrhagia, endocervical discharge, pain in walking, loss of sexual desire, neuralgia and reflex nervous disturbances.

Treatment.—It is either palliative or operative. The palliative treatment consists in rest, warm vaginal douche, local depletion, treatment of the eroded cervix, glycerine tampons, astringent douches; such remedies as borax and glycerine, tannin and glycerine, carbolic acid and glycerine with iodine, and the other means spoken of for the treatment of menorrhagia. Preparations of the mineral acids with quinine and bark should be given. If the womb is in a state of subinvolution, ergot may be administered.

To help in the skinning over of the eroded surface, and the glazing of the congested papillæ, preparations of iodine, chromic acid, weak nitrate of silver, and perchloride of iron solutions may be used locally.

Emmet advises, as a palliative measure, the passing of a silver suture through the flaps to prevent them from gaping.

Operative Measures.—These are not to be thought of until by such palliative treatment as that just detailed the uterus is brought into a fit state for operation, and all symptoms of inflammation or perimetritis have disappeared. The

week after a menstrual period is chosen. The bromides may be given for a few days previously, and a hot vaginal douche to restrain the bleeding should be used immediately before the operation. The instruments required are a



FIG. 160.—Sims's Elbow Scissors.



FIG. 161.—Emmet's Needle and Holder.

vaginal douche, a few duck-bill specula, long-handled knife, curved scissors, tenaculum, some short lance-headed needles of Emmet or Sims, needle-holder, a reel of Bantock's non-absorbent silk, or silver wire, forceps, and a Clover's or Alexander's crutch.

Trachelorrhaphy is thus performed. The patient is brought

(anæsthetized, though not necessarily, as the operation is not very painful) well to the edge of the bed or operating couch. The lithotomy position will be found to give most room, and is most convenient for operating. A crutch can

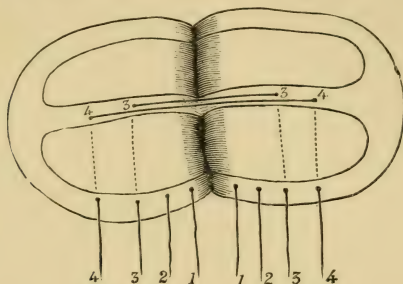


FIG. 162.—Emmet's operation—denuded surface and sutures (Emmet).

be used to separate the thighs (see Alexander's crutch, Fig. 145*a*). The cervix is exposed, and drawn down with the volsella, and kept in position by an assistant. The edges of the laceration are first brought into a position to judge how far the uterine surfaces have to be denuded. A stout rubber watch-spring ring is slipped on to the base of the

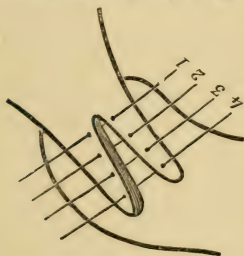


FIG. 163.—Sutures passed.

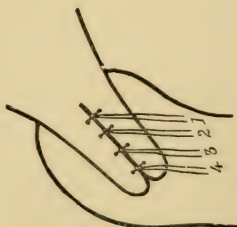


FIG. 164.—Sutures applied.

cervix to control bleeding. The vagina is washed out with some carbolized water.

The operator begins by denuding one side of the laceration, and removing the tissue, as shown in the drawing. The cicatricial tissue in the angle of the laceration is completely removed. The same step is taken on the other side if the laceration is bilateral. A broad strip of the cervical surface is left untouched, to form a future cervical canal.

Fig. 162 shows the surface denuded, and the course of the sutures, after Emmet. Fig. 163 exemplifies the way in which the sutures lie in the cervix before they are tightened. Fig. 164 explains the closure of the cervix and the tying of the sutures. The sutures are passed in the order 1, 2, 3, 4. One side is first united, and closed, and afterwards the other. It is better, after operating, to draw off the patient's urine. But from the third day she may pass water herself, leaning forwards on her knees. The vagina is regularly washed out with some weak disinfectant wash. We had better not disturb the silver wire sutures for ten or twelve days. I have, to my disappointment, found removal of the sutures on the seventh day prevent the union which, had they been undisturbed, I would have secured. I may add that I believe a mistake which causes many failures after all perinæal, utero-vaginal and vesico-vaginal operations is too early interference with sutures.

Authorities are still divided as to the etiological importance of laceration of the cervix, in the causation of various uterine pathological conditions. For example, Emil Nøggerath declares that 'women are *more* likely to conceive when there is a laceration than when there is not; the position of the uterus is *not* affected by laceration, its axis is *not* elongated as a consequence, erosions and ulcerations are *not* more frequently met with lacerations than without, they have *no influence* in producing uterine disease, eversion of the lips is *never* the direct result of a laceration.' Nøg-

gerath goes so far as to assert that laceration will soon disappear from the list of pathological affections of the uterus, and that operations for their cure will be things of the past. On the other hand, the eminent American gynecologist Mundé declares that cervical lacerations do act as predisposing factors in the production of uterine disease, the frequency and severity of the lesions increasing directly in severity in proportion to the length and depth of the tear. He also arrives at the conclusion that they lessen the productive fertility of a woman. I believe that the truth lies more in the mean between these two extremes of opinion—certainly rather on the side of the American view of the importance of the lesion. I have at present an American lady under my care, who was stitched in America for a laceration of the cervix, ‘unstitched,’ as she expressed it to me, by another surgeon, for too successful closure of the cervical canal (that is, the cervix uteri was divided), and she was ‘stitched’ a second time for too free undoing of the previous ‘stitching’ of the original tear. But I could instance several cases of women restored to health and procreative capacity, whose lives were miserable before extensive lacerations were cured, and I have seen several cases in which I believe the predisposing cause of serious uterine disease lay in old eversion and erosion, the consequence of an unremedied rent in the cervix.

CHAPTER XVI.

EROSION AND GRANULAR DEGENERATION OF THE CERVIX.

Pathology. — The term ‘ulceration’ of the uterus has almost disappeared from the vocabulary of the gynecologist. This remark refers to ordinary inflammation, as the malignant and syphilitic ulcers have still to be described. But that condition, which was erroneously regarded as one of ulceration, has been proved to be nothing more than a desquamation of the superficial epithelial layer covering the lips of the os uteri and cervix. This is attended by increased vascularity and growth of villous projections, which protrude on the surface under the single layer of epithelial cells. Up to a comparatively recent date, it was taught that the bright spots seen within the area of the eroded or granular patch were hypertrophied papillæ, enlarged and highly vascular. Thus Scanzoni describes an ‘aphthous’ erosion, in which the mucous membrane is denuded of epithelium; and Schroeder includes a notice of ‘ulcers’ of the cervix with ‘erosions,’ and describes a papillary form of erosion in which the papillæ develop into ‘granular elevations.’ According to the researches of Ruge and Veit, the raw surface is covered with a single layer of epithelium, and the supposed papillary granulations are neoplastic formations. Recesses are formed by extensions inwards of the epithelium, and thus a papillary or villous appearance is given to the erosion. Friction, even such as is necessi-

tated in wiping away the thick purulent secretion which is found covering the cervix, causes bleeding from the superficial bloodvessels. This state has received the name in this country of 'cock's-comb' ulcer or granulation. But the accompanying change in the follicles of the cervix is not to be lost sight of. The glands are distended, the openings are gradually closed, through swelling of the adjacent tissue, or the formation of new connective-tissue. Cysts are formed, some of which may burst on the surface and discharge their contents. This cystic degeneration may involve the entire cervix.

Causation.—Erosion of the cervix, with cervical catarrh, is perhaps the commonest of all the diseased conditions of the uterus which we are called on to treat. This does not surprise us, when we remember that it may attend on all the other congested states of the uterus and cervix that we meet with in practice : as, for example, displacements, lacerations of the cervix, and vaginitis. We find it present in tubercular, syphilitic, and strumous constitutions. It may be induced or aggravated by the use of a pessary. I feel certain that this latter habit acts more frequently as an exciting cause than is generally thought.

Symptoms and Physical Signs.—These will in great measure depend upon the degree to which the uterus is involved in any coexisting disease, such as endometritis, hyperplasia, vaginitis, gonorrhœal infection. Coloured leucorrhœal discharge, pain when walking or standing, lumbar and sacral pain, dyspareunia, general lassitude, inability to undergo fatigue or any exertion, loss of appetite, are among the symptoms most frequently complained of. On digital examination, the os uteri feels soft and moist, and the granular or eroded surface is felt by the finger. With the speculum, the os uteri and adjacent cervix are seen covered with a creamy purulent discharge, perhaps tinged with blood. When this is wiped off with a little soft cotton-wool, the underlying eroded or granular surface is

seen. Frequently there is a fissure of the cervix, the result of an old laceration. The os and cervix bleed readily when they are wiped with a sponge or wool. If endometritis coexists, the characteristic tenacious discharge issues from the os uteri. If there has been gonorrhœa, the uterine discharge will often be found purulent, of a dirty, yellow colour, covering like a layer of discoloured cream the surface of the wool. The discharge has a slight foetor. In these cases also there is accompanying vaginitis, and probably, if the disease be chronic, an accompanying granular condition of the vagina.

Treatment.—The treatment may be thus summarized :

General. — Rest : prevention of vaginal friction by a vaginal rest ; the adjustment, if the uterus be displaced, of a suitable pessary ; the horizontal position ; avoidance of exercise and all sexual intercourse.

Tonics : Quinine and arsenic ; mineral acids and bark ; the combination of the bromides with vegetable tonics.

Local.—Vaginal douches, with any of the following agents added to the water : borate of soda, sulpho-carbolate of zinc, acetate of lead, Condyl's fluid, carbolic acid, alum, tannin (̄ss. of the borate of soda and ʒi. of any of the other remedies added to a quart of water), perchloride of mercury ($\frac{1}{10000}$).

Topical Applications.—Nitrate of silver (the fused sticks before referred to, or the solution in different strengths) ; carbolic acid and glycerine ; nitric acid ; Richardson's styptic colloid ; pigment of iodine (iodine ʒi., rectified spirit ʒi., flexible collodion ʒss.) ; chromic acid (ʒi.—ʒi.) ; iodoform ; perchloride of iron solution (ʒi.—ʒi. glycerine) ; chloride of zinc (ʒi.—ʒi.) ; liquid extract of hydrastis with glycerine ; biniodide of mercury. This is best applied by first painting the eroded surface with perchloride solution, and immediately applying an iodide of potash solution, when the red deposit of iodide of mercury forms on the part.

Vaginal Tampons of glycerine, glycerine and tannin, glycerine and boric acid, glycerine and hydrastis.

* See page 301, for particulars of Green's tablets.

Ointments (to cleanse and soothe irritation) of vaseline, with carbolic acid, iodoform, iodol, tannin, belladonna, morphia. (Coumarin, a few grains to the ounce, fresh coffee or vanilline disguises the odour of iodoform.)

Depletion.—Great benefit will often follow the occasional use of the uterine lancet. When used, three or four incisions of the usual depth should be made, and a few ounces of blood taken. If there are any exuberant granulations they may be snipped off with the scissors.

Vaginal Suppositories. — Those of belladonna, opium, acetate of lead, tannic acid, oxide of zinc, and iodoform are some of the best.

Management of Endometritis with Laceration of the Cervix.—Should these affections coexist, they must be dealt with as already indicated.

There are some general hints for the management of these granular states of the os and cervix which I think it well to add :

1. Give a guarded opinion in reply to the question of the patient or friend, as to the length of time a severe erosion or granular condition of the cervix will take to heal. The affection, especially if there is any coexisting disease of the uterus, must be tedious.

2. A fair judgment of the tendency to cure may be formed from the subsidence of the villous projections; the disappearance of granulations; the paleness of the exposed surface, and its diminished vascularity; the tendency to skin over; the diminution of discharge.

3. There is the danger of *over-treating* this affection by the too frequent use and prolonged application of powerful caustics or astringents. The strength of every application must be regulated by the severity of the case, and determined by the surgical instinct of the practitioner. No routine rule of using this or that strength of any agent should be followed.

4. Place as much, if not more, reliance on physiological rest and soothing applications as on other local medication.

5. Do not pronounce the case *cured* until the surface has completely healed, and the patient has been subsequently under observation for a little time.

FOLLICULAR DEGENERATION.—Three pathological conditions of the os uteri and cervix are closely allied to each other, both in their etiology and histology; these are: follicular degeneration, mucous polypi, and follicular hypertrophy. All three are commonly associated with either a congested, eroded, or lacerated cervix, and eversion or 'ectropion' of the lips of the os uteri. In all three there are congestion and hyper-distension of the glands of the cervix (ovula Nabothi); this leads to a cystic condition, and these cysts either rupture, or through hypertrophy of the subjacent tissue are forced forwards in the form of polypi, or in the external vaginal surface of the os uteri they form grey or yellow cystic projections, which frequently have purulent contents, but are more usually filled with colloid matter. Sometimes the collapse of the follicle is followed by a depression on the surface of the cervix. This little pit slowly disappears. The mucous polypi are found rather in elderly multiparæ. The contents of the cysts are granules, mucous corpuscles, and epithelial cells; they are lined by a basement membrane (Farre). If the cystic degeneration of the follicles of either one or both lips of the os proceeds unchecked, and there is an increase in the connective-tissue of the cervix, a state of general hypertrophy ensues, attended at times by fungous growths. This 'follicular hypertrophy' (Schroeder) of the cervix we thus see commences in follicular degeneration and cyst-formation; the polypoid character of the cystic growth being, in this instance, prevented by the investing and resisting epithelium of the vaginal surface of the cervix.

Diagnosis.—The presence of the cysts, and the nature of their contents; the appearance of the characteristic small polypus protruding from the os; the soft, cystic-looking, and enlarged lip, will readily distinguish the three conditions. Should a cyst rupture, and an apparent ulcer form—in this softened state of the cervix, a mistake might be made from the time of life of the patient—or some malignant ulceration may be suspected. Such an error I have known committed in a case in which I subsequently ablated one lip of the os for cystic hypertrophy.

Treatment—Cysts must be opened and the contents

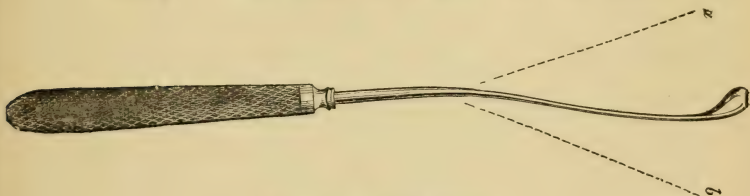


FIG. 165.—Sims's Curette.

evacuated, and chromic acid, carbolic acid, or nitric acid applied to the cavity. A mucous polypus must be removed with scissors or forceps. If we suspect the presence of small polypi inside the cervix, the canal must be dilated, and resort must be had to the curette, forceps or long scissors for their removal. Nitric acid (Atthill) or chromic acid may be used to destroy very small polypoid projections into the canal. In very obstinate cases of cystic degeneration and follicular hypertrophy, the diseased vaginal portion of the cervix has been ablated with either scissors, knife, or the wire of the galvanic *écraseur*.

Green's tablets of mercuric perchloride can be had in three strengths. They are most convenient; they are freely soluble in water and give it a slight pink colour, which is convenient for recognition. One tablet of No. 2 strength, dissolved in one pint of water, gives a strength of 1 to 1500. (Green and Goodwin, 102, Star Street, Paddington.)

CHAPTER XVII.

PARAMETRITIS AND PELVIC PERITONITIS.

THERE are four forms of inflammation, which might well be considered in connection with each other. These are :

- | | |
|------------------|-----------------|
| 1. Perimetritis. | 3. Ovaritis.* |
| 2. Parametritis. | 4. Salpingitis. |

PERIMETRITIS.†—By perimetritis we mean inflammation of the pelvic peritoneum, and limited to it. Though I follow here, amongst others, such well-known gynecologists as Duncan, Schroeder, and Gaillard Thomas, in describing parametritis (pelvic cellulitis) and perimetritis as distinct affections, still I am fully in accord with Emmet when he declares that clinically this theoretical distinction disappears, and that it is impossible (at least in the majority of cases) ‘to make any distinction at the bed-side.’ The frequency with which perimetritis is met in practice may be inferred from this statement of Dr. Matthews Duncan : ‘Adhesive perimetritis is almost certainly second in point of frequency among the diseases of women, the first position being held by uterine cervical catarrh ; in post-mortem examinations of women no pathological condition is more frequently discovered than adhesions between the internal genital organs and neighbouring parts, especially about the ovary.’ Anyone who, like myself, has spent a number of years (ten) in the anatomical theatre, and who has been engaged in making dissections of the female pelvic viscera, will verify this conclusion.‡

* For ovaritis, see Chapter on Affections of the Ovary.

† See page 315.

‡ ‘I do not exaggerate,’ says Emmet, ‘when I assert that pelvic cellulitis is by far the most important disease with which woman is afflicted.’

Causation.—Acute metritis and endometritis; ovaritis; salpingitis; arrest of menstruation (due to the effect of cold); septicæmia; abortion and parturition; operation on the uterus and vagina; the passage of a uterine sound; the use of tents; gonorrhœa; imperforate hymen and concealed menses; ovarian cysts; uterine fibroids; tubercle; cancer.

Pathology.—The division of perimetritis (Matthews Dun-

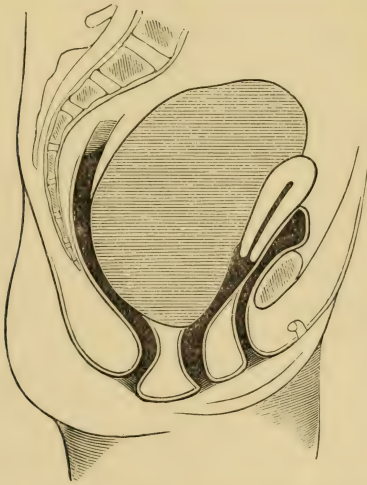


FIG. 166.—Collection of serum in the peritoneal cavity (Perimetritis Serosa), Schroeder.

can) into three kinds—adhesive, serous, and purulent—answers all practical purposes. In the first variety there is an exudation of plastic lymph from the engorged and turgid peritoneal vessels. This results either in temporary adhesions between the pelvic viscera, or in permanent adhesions which remain for the lifetime of the individual, causing dragging and displacement of the ovaries and Fallopian tubes, binding these down, or connecting them with each other. These adhesive bands or membranous

layers may shut off collections of pus or serum, forming cyst-like cavities. Such an enclosed collection is shown in the accompanying drawing from Schroeder.

In the serous and purulent varieties an exudation of serum or pus occurs into the peritoneal cavity, and naturally first collects in the most dependent situation, which is Douglas's pouch, pushing upwards the coil of intestine which is contained in it when the bladder and rectum are empty. Such an exudation of serous fluid, as it increases in quantity and becomes harder, may press the uterus forwards against the pubes. At other times the exudation occurs at the sides or all round the uterus, or it may rise over the fundus of the uterus and pass above the pelvic brim into the abdominal cavity. A limited collection of serum or pus may form between coils of intestine; this, after absorption or rupture, may leave adhesions and inflammatory thickening of the peritoneum. The quantity of pus which may thus collect in the peritoneal cavity is very large; take, for example, the following case, reported by me in the year 1881.

J. C., aged 32 years, was admitted into the Cork South Infirmary with a history of pelvic peritonitis after parturition. The history of pain and enlargement commenced a week after labour. There was enormous distension on admission (April 15th, 1881). The patient was aspirated on the 16th, and over *nine pints of pus* drawn from the peritoneal cavity. This quickly re-secreted, and on May 2nd *five pints* more were taken to relieve the sense of hyper-distension, and consequent uneasiness. On May 13th, the abdomen was opened antiseptically; all the pus was evacuated through an incision of about two and a half inches. The peritoneum was greatly thickened; it was hooked carefully up and held in contact with the abdominal parietes; then a Keith's glass drainage-tube was passed

and held in position in the wound by sutures ; the peritoneum was stitched from within to the abdominal wall as in ovariectomy ; a drainage-tube with a wire coil inside was attached to the glass tube, its other end resting in a bucket of carbolic water, which was placed at the side of the bed. The pus drained into this for nearly three weeks. The glass tube was taken out each day, and the wound was dressed under spray, the orifice was carefully cleansed, and the rubber tube well washed out with carbolic solution, the end of the tube being corked under the carbolic water whenever the latter had to be changed. Suffice it to say that the patient lost, at the lowest calculation, some forty pints of pus while in hospital. For the last five weeks the opening was kept patent to secure drainage, by a bunch of carbolised horse-hair carried well into the cavity. The discharge gradually ceased. A hard mass filling the pelvic brim remained. This finally disappeared. The woman became quite strong and well, had a good appetite, and was only anxious to leave the hospital. (I had to leave home for a little time.) During my absence the patient, having been up and out for several days, suddenly complained of pain ; symptoms of collapse set in with intense pain and vomiting, and she died in twelve hours from the onset of the symptoms. The house-surgeon made a post-mortem examination, and found that a recent rent had occurred in the pelvic peritoneum, through which some fetid pus had escaped into the general peritoneal cavity ; adhesions had formed which protected the bowels, but the peritoneum was greatly thickened in parts. A funnel-shaped canal led up to the abdominal opening, and some fetid pus was found at the side of the uterus. I regret much my absence from the autopsy of this most interesting case. Since I first published the details of this case the treatment of large pelvic abscess and suppurative peritonitis has considerably advanced ; abdominal section and free flushing out of the cavity with an antiseptic solution being the most efficient mode of treatment. I feel confident that in

any similar case, a free abdominal opening, with a counter opening in the vaginal roof—thorough drainage being obtained and maintained—might completely cure. The patient lived nearly four months from the date of the abdominal section, dying on August 4th.

In October, 1885, I saw a girl aged eleven years, with Dr. Bastable. The abdomen was distended with fluid. Some pus was oozing from the umbilicus. I passed in an aspirator and drew off about a pint of pus. The next day, Mr. Bailey giving ether, I made an opening into the peritoneum, drew up its margins, and fixed them to the abdominal wall with sutures, first evacuating a large quantity of pus with the aspirator. I then passed a Keith's drainage-tube downwards towards the pelvis, to the other end of which was fixed a tube draining into water, the tube being fixed in with cross straps of adhesive plaster, and the entire abdomen covered with antiseptic dressings, which were used all through. When the fluid was drawn off, a suprapubic mass was detected. This completely disappeared as the child got better. For three weeks the drainage-tube was retained. Dr. Bastable estimated the quantity of pus drained from this child at eleven pints. She is at the present moment at school, and in perfect health.

The abscess may open into the rectum, the vagina, the bladder, and, very rarely, into the uterus. It may point in the groin, the upper part of the thigh, in the region of the sciatic notch, in the lumbar region. I have had under my personal care cases which have burst into the rectum, vagina, bladder, and the groin.*

A sudden escape of pus into the general peritoneal cavity is, as a rule, followed by fatal peritonitis. Or decomposition of the pus may cause fatal septicæmia. But not unfrequently absorption of large collections of fluid takes place, and the patient returns to health. Resorption, how-

* Such a case I saw with Dr. Douglas Lithgow, in which, before any relief could be afforded, the abscess had burst both into the bladder and rectum.

ever, is generally a very slow matter; nor does it often happen without leaving some exudation or adhesion, which feels like a circumscribed tumour in the pelvic roof.

*Symptoms and Physical Signs.** The symptoms will depend on the nature of the inflammation, whether it be acute or chronic. In acute pelvic peritonitis, there are generally rigors, high temperature, rapid pulse, coated tongue, some gastric disturbance, vomiting. These symptoms are accompanied by abdominal pain, tenderness, and tympanites. On examination the abdomen is found very sensitive to pressure; the vagina is hot, perhaps swollen, and we may, comparatively early in the attack, be able to define a fluctuating swelling in the posterior vaginal cul-de-sac, or laterally through the vaginal roof. These signs of the affection are soon followed by the characteristic one of *fixation of the uterus*. There is a hard 'board-like' feeling (Doherty) anteriorly or posteriorly, the effusion displacing the uterus, or encircling it. Should the disease run an unfavourable course, the symptoms of septicæmia or general peritonitis set in; the vomiting increases; the temperature rises to 105° or 106° ; the pulse is rapid and wiry, the countenance becomes more anxious, abdominal pain and tenderness and tympanites increase, and delirium sets in. In other instances the perimetritis is far more insidious in its onset, and the symptoms are so obscure that no local examination is made until the exudation is discovered, which may have filled Douglas's space and fixed the uterus. Persistent abdominal pain varying in severity, or some pelvic distress either in the bladder or rectum, first calls for an examination, and the swelling is discovered. Such cases may run on for some time before advice is sought, which is often taken, as much for the loss of appetite and wasting as for the local distress.

It is certain that many cases, both of parametritis and

* See page 316.

perimetritis, are not recognised, though the inflammation has been present for some time and effusion has taken place. Many a case is assumed to be one of threatening typhoid, or some 'gastric' disturbance with hyperpyrexia, and is treated accordingly, until the more pronounced local symptoms and signs arouse suspicion, attention, and examination.

Prognosis.—Perimetritis is always a dangerous and serious affection. The principal dangers are: general peritonitis, pelvic abscess and septicæmia, metritis, uterine displacements, limited organized effusion, adhesion, atrophic states of the ovary, obliteration of the Fallopian tube, dysmenorrhœa, and sterility.

Treatment.—In *acute* cases, opium in grain doses; an ice-bag on the abdomen; the application of Leiter's temperature-regulators; leeches to the hypogastrium; enemata; relief of the bladder by the catheter, if necessary. In the latter stages, vesication over the hypogastrium with the liquor epispasticus, followed by a stupe of spongio-piline laid over the vesicated surface; also the application of iodine.

In chronic cases, careful regulation of exercise; avoidance of chills and exposure to cold; great care at the menstrual periods; rest in bed should be insisted on if there be periodical exacerbations of temperature and swellings; no sexual intercourse should be permitted. The patient may be treated with warm hip and iodine baths, applications of iodine externally (iodine pigment, made of iodine $\mathfrak{z}\text{i}$., mastich $\mathfrak{z}\text{i}$., rect. spt. $\mathfrak{z}\text{i}$.), warm compresses, the hot vaginal douche, with laudanum added to the water. A few leeches, when the patient is threatened with recurrence of attacks, may be applied near the anus or in the vaginal region. The bromides, with iodide of potassium, are indicated; and if attacks of sickness recur, such medicines as bismuth, hydrocyanic acid, chloride of calcium, or effervescing mixtures of bicarbonate of soda and potash may be given. If a stimulant is required, some dry champagne, or small doses of brandy,

with soda or seltzer water, are perhaps the best to select. But, on the whole, stimulants are better avoided, or should only be given in very moderate quantities, and abandoned when the occasion for their employment has passed.

In regard to the question whether the fluid should be evacuated or not, I may quote the rule laid down by Gaillard Thomas : If, in spite of the sero-purulent collection, the patient be doing well, and do not suffer from the local trouble, it should be left to empty itself spontaneously. If, on the other hand, the patient is suffering from the collection, be not progressing favourably, and the evacuation be perfectly practicable, it should be accomplished.

PARAMETRITIS—PERI-UTERINE CELLULITIS.

By the term parametritis (pelvic cellulitis) we mean a phlegmonous inflammation of the connective-tissue of the pelvis. It occurs in frequent association with the puerperal states as the result of septic absorption. It may be taken as understating the proportion of cases of peri-uterine inflammation due to childbearing, miscarriage, abortion, both criminal and other, if we place these affections as furnishing over 50 per cent. of the causes.*

Causation.—It may be due to traumatic causes, as operations on the uterus ; injuries ; tents ; intra-uterine stems ; ovaritis ; caustics applied to the uterine cavity. In a table of 146 cases, Emmet shows that 50 per cent. were complicated with versions or flexions, and over 17 with laceration of the cervix, the next most frequent association being fibroid.

Pathological Anatomy.—The extensive distribution and connections of the cellular tissue of the pelvis explain the different positions in which the exudation occurs in parametritis ; in the layers of the broad ligaments behind the uterus and rectum, upwards along the psoas muscle to the kidney, into the iliac fossa, occasionally, between the rectum and uterus and the uterus and bladder, and downwards into

* See page 316.

the cellular tissue of the gluteal region by the sciatic notch. The ovaries and Fallopian tubes are nearly always involved. Dr. Matthews Duncan describes a form of parametritis as well as perimetritis, in which remote collections of pus or serum occur in connection with the local inflammation, or after it has subsided, as in a case quoted by him where the swelling appeared in the neighbourhood of the umbilicus. It is evident from these facts that at the bedside we must expect to find frequently associated both parametritis and perimetritis; it is not conceivable that the peritoneum can escape in a large number of cases of cellulitis.

The stages of the inflammation are the same as those of phlegmon occurring elsewhere—(a) congestion, (b) effusion, and, if resolution does not happen, (c) suppuration. The inflammation may not pass beyond the second stage. With regard to the effusion or exudation, there are many degrees of intensity, from a slight swelling in either broad ligament to a considerable infiltration at both sides of the uterus, leaving a hard mass that fills the entire upper part of the pelvis. This exudation pushes the uterus to either side, out of position, or presses it and the vaginal roof downwards, forwards, or backwards. The effusion at first feels soft to the finger; it then gradually hardens, and, if abscess form, it again softens, and fluctuation may be detected. Though, in the commencement, the exudation pushes the uterus to the side opposite to the effusion, later on, when absorption has begun, it is drawn to the side of the exudation (Schroeder).

Diagnosis.—I have already tabulated the most reliable points of distinction between perimetritis and parametritis. Easy though it may seem to the experienced hand, it is not at all so simple a matter for the young practitioner to diagnose some hard parametric exudations, especially those situated anteriorly or posteriorly, from fibroid tumours of the uterus. This arises from the fact that the tumour can

PARAMETRITIS.	PERIMETRITIS.	FIBROUS TUMOURS.	HEMATOCELE.
Connected more frequently with abortion ; parturition ; operations on the uterus ; septic causes.	Coming from similar causes, but frequently also from imprudence during menstruation ; from ovaritis and the escape of fluid into the peritoneal cavity ; gonorrhoea a frequent cause.	The characteristic, slow and more uniform growth, and the history of local pelvic distress.	Caused by some irregularity of menstruation ; traumatic causes ; atresic conditions of uterus, vagina, or vulva.
Acute febrile symptoms —may be slight and unnoticed.	Acute febrile symptoms more severe ; nausea, vomiting, tenderness, tympanites, more likely to be present.	Absent. History of menorrhagia and metrorrhagia.	Sudden appearance ; signs of hæmorrhage ; occurs without preceding symptoms of inflammation.
Hardness more likely to be lateral.	Hardness posteriorly or anteriorly.	Distinctly uterine.	Symptoms of peritonitis follow.

Swelling easily reached from the vagina; soft and doughy at first, then becoming hard; softening again if pus forms.	Swelling generally retro-uterine; if lateral, likely to be out of reach of the finger.	Swelling incorporated with the uterus, and moving with it; tumour hard from the first and round; characteristic feel of cervix.	Swelling soft at first; gradually becomes hard.
Pain present. Not so painful as perimetritis.	More painful.	Not sensitive; pain may be altogether absent.	Pain follows the formation of the swelling.
Retraction of the thigh.	Retraction of both thighs.	Uterus generally movable.	Uterus displaced according to the site of the hæmatocele.
Uterus, becomes less movable; displaced laterally; or fixed.	Uterus less movable; frequently fixed.	Uterus generally movable.	Swelling more frequently found in the posterior cul-de-sac or in Douglas's space.
Swelling not so diffused.	Swelling diffused; hard at first, gradually softening.		

very rarely be moved apart from the uterus; the womb moves with the tumour, so that it is difficult to isolate it. These few diagnostic traits, set down in tabular form, will help to differentiate the effusion of parametritis from other swellings liable to be mistaken for it (see pp. 311, 312).

Symptoms and Physical Signs.—Acute parametritis is marked by the following symptoms: rigors, increase of temperature ($102-104^{\circ}$), rapid pulse, pain in the hypogastrium, general febrile disturbance, rectal discomfort and constipation; the vagina during this stage is found hot and swollen, and there may be vaginal pulsation. Later on, a careful vaginal and rectal exploration will enable the examiner to detect, in some portion of the vaginal roof, or posteriorly in the utero-rectal space, a small painful swelling, the commencement of the exudation.

Later still, the 'board-like' feeling of the induration and the displacement of the uterus and its fixed position leave little room for doubt. The decubitus is more frequently to the affected side (Duncan). There is a very characteristic symptom which occurs also in perimetritis, that is, retraction of the thigh. This happens when the iliac or psoas muscles are involved, and an abscess has formed, or is forming, in the neighbourhood of or involving the psoas muscle.

But perhaps the most vital fact for the practitioner to remember in connection with parametritis is the essentially chronic and insidious nature of the affection in many instances. It is not necessary that the patient should complain of any marked symptom which would attract the medical man's attention specially to the uterus or the pelvic genital organs. I have seen such cases where pelvic mischief was not even suspected, and yet extensive parametritis had for some months been progressing.

Not long since I had such a case, in which rectal dysen-

teric symptoms completely masked those of cellulitis, and absorbed the attention of the physician. From the history of the case there had been evidently, in the first instance, endometritis. The patient was unmarried. When I saw her, the uterus was quite fixed by an exudation, which surrounded it, and which pressed the uterus back against the rectum, so that it occluded the cul de sac of Douglas; this explained the rectal distress.

Pain in walking, a throbbing sensation in the uterus, general loss of health, some nightly rise of temperature or hectic, may be the only symptoms present in these chronic cases. Following on either the acute attack or the chronic form, there is gradual wasting and loss of weight, and, in some instances, emaciation. The patient is worn down by the suffering and the local distress. If the exudation terminates in suppuration, and an abscess forms, relief may rapidly be afforded through the bursting or the evacuation of the pus. But unfortunately it occasionally happens that the pointing of the abscess is a matter of long duration; the pus burrows in the cellular tissue, and long sinuous channels form, through which it finds its way to the surface, and these fistulous tracts render the case extremely protracted.

Perhaps the exudation hardens, and a large solid tumour occupies some portion of the pelvis, producing both rectal and bladder distress by pressure on these viscera, and exhausting the patient through a slow process of absorption, prolonged over many months of unrest and suffering. If an abscess forms, it may point in the rectum, vagina, or abdominal wall. In the Cork County Hospital, when I was attached to its surgical wards, a woman was admitted under my care with a parametric exudation boarding up the roof of the vagina anteriorly, and producing great vesical distress. Shortly after admission, a quantity of pus suddenly appeared in the urine, and this continued for a con-

siderable time, and the pelvic hardness finally disappeared. Some little time since, I was called to see a lady, exhausted from prolonged suffering, from what I judged to be an attack of peri-uterine cellulitis with perimetritis. The patient was so weak that she fainted at the first attempt at a digital examination. She had not for many weeks had rest, save by the aid of bromide of potassium and chloral. I found a large tumour completely fixing the uterus. There was a slight uterine discharge. When the bowels were relieved, the greatest agony was suffered. There was limited peritonitis, with exudation, which could be traced almost to the level of the iliac crests. On the following day a speculum was introduced, as she complained of considerable pain during the night, and a flow of fœtid discharge. I found a quantity of discoloured pus in the vagina; and on clearing this away, I saw that it came rather profusely from the os uteri. For five weeks this purulent discharge continued, and it lasted, in smaller quantity, for ten weeks from the time I first saw her. She has now recovered: all hardness has disappeared, and the uterus is quite movable. But this happy termination of such an extremely grave case is not the rule.

In addition to the immediate dangers, from the inflammation involving the peritoneum and causing general peritonitis, or the more remote risks that are inseparable from the presence of pus and the bursting of a pelvic abscess, there are the ultimate results, such as adhesions, atrophy of the ovary, occlusion of the Fallopian tube, sterility, uterine displacements, with amenorrhœa and dysmenorrhœa. Parametritis is not an affection in which we have so much to fear fatal consequences, as those chronic conditions I have already specified.

Treatment.—Much of what has been said regarding the treatment of perimetritis refers with equal force to para-

metritis. Rest in every way that it can be secured, and that for a considerable time; opium in the acute stages, and the regulation of the temperature by the application of ice, or Leiter's tube (Fig. 167), which can be applied both externally and in the vagina. In the case just detailed, the warm vaginal douche, with a little of Condyl's solution in the water, used three or four times daily, did much service; warm compresses and thin cataplasms externally were also of great benefit. The liquor epispaeticus may be applied over the hypogastrium. The patient's strength must be sustained with a light and nutritious diet. In the chronic stages the iodides of potassium or sodium, combined with bromides and tonics, may be given. I am inclined, in these cases of old and unabsorbed effusion, to look favourably on a course of perchloride of mercury and bark (or a pill containing percyanide of mercury (gr. $\frac{1}{12}$), quinine (gr. ii.), extract of gentian and bread-crumbs q.s.). One pill three times daily.*

I must say a word of caution regarding the rectum.† I could detail particulars of cases in which both serious consequences to the patient, and unfortunate errors of diagnosis, have resulted from overlooking the possible presence of scybulous masses in the large intestine and rectum. Dr. Gaillard Thomas draws particular attention to this important fact. I would warn all practitioners to explore the rectum and carefully palpate the colon in every case where a doubt exists as to the nature of an obscure abdominal swelling.

Clinical Differentiation between Perimetritis and Parametritis.—I am more than ever sceptical of the soundness of the theoretical distinction which has been drawn between these conditions rather on anatomical than clinical grounds. I believe it would be better clinically to retain the term parametritis alone, and include under this head all those secondary results which attend on inflammations in the cellular tissue in the neighbourhood of the uterus. These effusions may primarily occur between the layers of the broad ligaments, be-

* See page 238.

† See Chapter on Rectum.

tween the bladder and uterus, between the vagina and posterior wall of the uterus. As consequences of this cellulitis we have salpingitis and different degrees of pelvic peritonitis with effusions occurring in Douglas's pouch. On the other hand, the inflammation may commence in the peritoneal folds of the pelvis, anteriorly or posteriorly, and the effusion may occur primarily inside the peritoneal cavity, as it commonly does in the pouch of Douglas. Here cellulitis is a secondary result of the pelvic peritonitis, and both serous linings or folds and the cellular tissue of the pelvis are alike involved in the inflammation and resulting effusion. The secondary peritonitis may be as limited or localized in the case of the primary cellulitis as the secondary cellulitis is in the instance of the primary peritonitis.

Venous Turgescence simulating Parametritis.—Hardon has drawn a distinction between true cellulitis and the fulness and hardness due to turgescence and engorgement of the large venous sinuses in the broad ligaments consequent upon pressure and dragging of the uterus. Proper elevation of the uterus relieves this congestion. This venous engorgement points to the facility with which, in such cases, operative interference (Emmet) occasionally leads to phlebitis and septic sequences.

Treatment of Parametritis.—If we except the plan of Apostoli of treating parametritis by electrolysis, nothing of material importance has been added to our methods of treatment of this affection, and the general principles advocated in the text are those by which we must be guided in treating it. I may summarize the most important of the recent suggestions.

- (a) Apostoli's treatment by electrolysis (*vide* Chapter on Gynecological Electro-Therapeutics);
- (b) The constant and free use of the hot douche (*vide* text), to favour resolution and promote absorption;
- (c) The value of antipyrin, antifebrin, and phenacetin as antipyretics, in the acute stage;
- (d) The careful curetting of the uterus, after dilatation, in endometritis, in the chronic stages of the disease (Poulet);
- (e) The internal administration of perchloride of mercury (Vineberg), in chronic effusions (*vide* text); the value of this treatment was pointed out in the first edition of this work.
- (f) The early evacuation of the serous fluid by the aspirator (Hardon); this is done by inserting the aspirator needle to the depth of half an inch in several points, avoiding pulsating vessels and taking careful antiseptic precautions.
- (g) Exercise of judgment in the early evacuation of the pus, in the case of abscess (as originally insisted on in the text). Hunter recommends a branched uterine dilator to enlarge the wound. and admit the finger so as to explore, and break down any septa that may divide the pus cavities.

CHAPTER XVIII.

PELVIC HÆMATOCELE.

PELVIC HÆMATOCELE is the name given (McClintock) to a collection of blood, which is either *enclosed* in the peritoneum behind the uterus, in Douglas's pouch—*retro-hæmatocele*

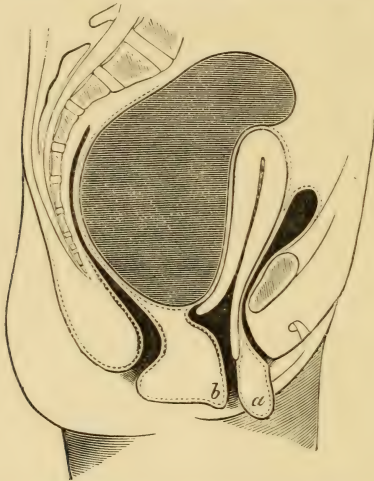


FIG. 167.—Retro-hæmatocele (Schroeder).

(Nélaton); or in front of the uterus (comparatively rare); between it and the bladder—*ante-hæmatocele*. The blood may escape posteriorly or anteriorly into the cellular tissue outside the uterus, forming a thrombus or hæmatoma. If it escapes into the peritoneum, it is called *intra-*

peritoneal ; if the blood is effused into the cellular tissue outside it, it is by some authorities named *sub-peritoneal hæmatocele*. It is also described as 'encysted,' when limited by adhesion, either in the peritoneum or outside it.

Causation.—Hæmatocele is more likely to occur during the active period of menstrual life ; but I have known a case in which a large retro-hæmatocele occurred rapidly, in a patient

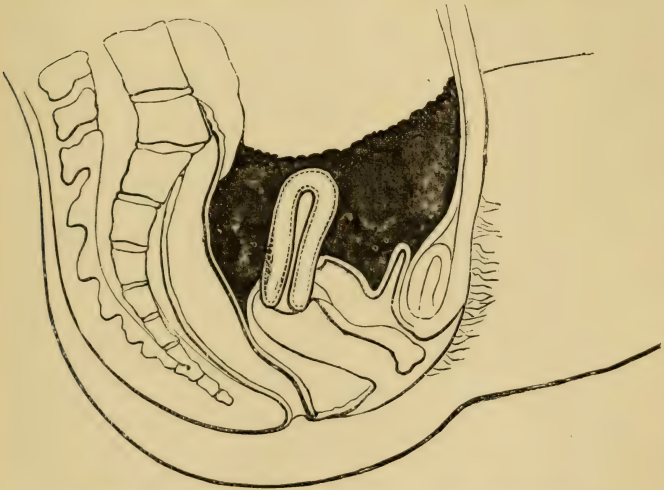


FIG. 168.—Hæmatocele in the Peritoneum, after Emmet.

over sixty, from a fall off a chair. I have on one occasion seen a pelvic hæmatocele form suddenly in a severe case of typhus fever. We may thus subdivide the causes of pelvic hæmatocele :

- | | | |
|--------------------|---|-------------------|
| 1. Abnormal blood- | <div style="font-size: 3em; vertical-align: middle; padding: 0 10px;">{</div> | Anæmia. |
| states | | Plethora. |
| | | Purpura. |
| | | Zymotic diseases. |
| | | Jaundice. |

- | | | |
|---|---|---|
| 2. Obstruction to flow of blood, menstrual or other (as in atresia), in the | { | Fallopian tubes.
Uterus.
Vagina.
Vulva. |
| 3. Menstrual suppression from ... | { | Mental shock.
Cold.
Coitus. |
| 4. Connected with pregnancy | { | Extra-uterine foetation.
Abortion.
Rupture of uterus (in early pregnancy). |
| 5. Disease in the ovaries and Fallopian tubes) | { | Rupture of ovary and Fallopian tubes.* |
| 6. Traumatic ... | { | After operations, as ovariectomy ; flow from the pedicle (Wells).
Blows, kicks, falls, some overstrain, the use of tents ; excessive coitus. |
| 7. Perimetritis and parametritis. | } | (Virchow and Schroeder.) |

Symptoms and Physical Signs.—There may or may not have been some previous hæmorrhage, or a suspicion of it. The symptoms in the relative order, and as they usually occur, are—shock, tendency to collapse, great pelvic pain, syncope, sense of weight and pressure in the pelvis, vomiting, fall in temperature, rapid and weak pulse. These symptoms may persist, and death may ensue, despite every effort to rouse the patient. They are all intensified in the intra-peritoneal variety. Their severity will in great measure depend on the quantity of blood which is effused

* At the meeting of the British Gynecological Society, Feb. 9, 1887, Mr. Bland Sutton showed an interesting specimen of intra-peritoneal hæmatocele successfully operated upon, the result of rupture of a cyst of the left ovary, the blood being caught in a fold of adherent omentum and becoming encysted. The uterine appendages of both sides were removed, and, as either incidental to the operation or occurring immediately before it, a cyst in the right ovary had likewise ruptured, and blood had escaped into Douglas's pouch.

into the peritoneal cavity. When reaction sets in (within forty-eight hours), the patient may suffer from rigors, the temperature rises, the skin becomes hot, the pulse changes in character. Menorrhagia may increase or persist. On examination, the abdomen is frequently found tense; there are abdominal swelling and dulness, especially over the hypogastric and inguinal regions. The abdomen is tender on palpation. On vaginal examination, a mass is found generally posterior to the uterus—rarely anterior; it is smooth, soft at first, and has a semi-fluctuating feeling. The uterus is pushed forwards against the bladder in the retro-uterine variety; backwards against the rectum in ante-hæmatocele. The bladder is generally encroached on, and retention of urine may result, or dysuria. The rectum is pressed upon. There is either difficulty and pain in defæcation, or rectal irritation may be present with tenesmus and dysenteric symptoms. As the case proceeds, the uterus becomes more fixed, and the mass is harder. The further symptoms and local signs depend on the course the hæmatocele takes, whether absorption occurs, or hardening of the mass, or if suppuration follows, the pus finding an exit through the rectum or vagina. It may escape, though very rarely, into the peritoneal cavity; on the other hand, it may very slowly disappear.

I had a case of well-marked pelvic hæmatocele under my observation for nearly three years. I was telegraphed for, from a distance, to see the lady, a young married woman, with conoidal cervix, shortly after the acute symptoms set in. [She was then in acute pain; the bladder was pressed against by the uterus, which was pushed upwards and forwards, so that it was almost impossible to reach the cervix; there was retention of urine, and with the greatest difficulty the rectum was occasionally emptied by enema. She was dangerously ill from the protracted pain and

distress, caused by the pressure on the pelvic nerves and viscera. The swelling gradually disappeared, and when I last saw her the bowel and bladder acted in quite a healthy manner, and the uterus had fairly regained its mobility, though not entirely. I cite this case merely to show how protracted such a recovery may be. Should suppuration take place, we have to dread the danger of peritonitis, septic absorption and septicæmia.

Diagnosis.—This is not in some old-standing cases at all so simple a matter as at first sight it may seem. We have to differentiate pelvic hæmatocele more especially from a retroverted uterus; a parametric effusion; a uterine fibroid; and a cystic formation in the pouch of Douglas, or outside it effusions in the broad ligaments.

We must rely in diagnosis on these proofs:

1. The suddenness in the accession of the symptoms.
2. The occurrence of hæmorrhage.
3. The position of the tumour posteriorly to (as a rule), and not at the sides of, the uterus.
4. The mode of formation of the tumour; its painful nature; its rapid development; its softness in the first instance, and the subsequent hardness, accompanied by shrinking of the tumour.
5. The position of the uterus, determined bimanually; the direction of the uterine sound; the length to which it passes; the independent mobility of the uterus; the appearance of pus, and the associated reduction in the size of the tumour.

Prognosis.—This must always be grave—much more so in the intra-peritoneal than the sub-peritoneal effusion. There are the dangers of exhaustion from repeated hæmorrhage, the pain of pressure, septicæmia, and peritonitis.

Treatment.—Absolute rest; ice over the hypogastrium; ergot given internally, and better by means of the sub-

cutaneous injection of ergotine (gr. iii. to gr. v.) into the gluteal region; opium later on during the period of reaction, both by the mouth and by the rectum (enema and suppository); quinine with digitalis; stimulants, to prevent syncope—iced champagne and brandy are the best. I have already entered into the question of evacuation of the fluid, and, in order to avoid repetition, must refer the reader to the chapter in which this question is discussed.* The figure shows a slender exploring trocar and canula, which will be



FIG. 169.—Exploring Trocar and Canula.

found of use in those cases. Individually my experience of pelvic hæmatocele would lead me to advise the practitioner not to interfere hastily with any hæmatocele unless there is persistent evidence of the presence of fluid, or that septicæmic symptoms threaten. The aspirating-needle is the safest explorer, as it is also the safest means of evacuating the pus. Should this not answer, and the fluid reaccumulate, the guarded bistoury must be used, and the cavity be subsequently washed out with some weak Condyl's fluid, or biniodide ($\frac{1}{3000}$) or bichloride of mercury ($\frac{1}{5000}$) solutions.

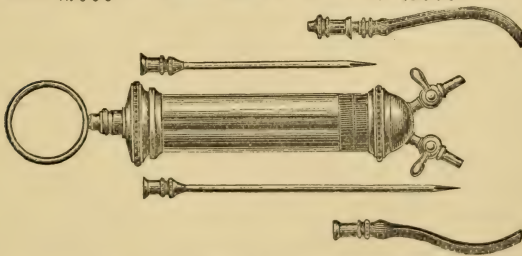


FIG. 170.—Bartlett's Exploring Aspirator.

* *Vide* 'Vaginal Paracentesis' and 'Puncturing a Pelvic Hæmatocele,' pages 101, 102.

Interference in Extra- or Intra-peritoneal Hæmatocele.—In the operative treatment of extra-peritoneal hæmatocele, the value of a branched steel dilator to enlarge the vaginal opening, and admit the finger and drainage-tube, has been urged (Powell, Gusseron, and others). The value of Paquelin's thermo-cautery knife in opening the vagina was well illustrated in a case of Dr. John Phillips', brought before the Obstetrical Society of London; the clots were removed, and a Keith's drainage-tube was used. In those cases in which there is much abdominal swelling, and symptoms of pyrexia, especially if there be doubt as to the cause of the hæmatocele, or in hæmato-salpinx, when there may be a question of tubal pregnancy, the operation of laparotomy combined with subsequent drainage and free antiseptic measures is the proper course to pursue. The value of iodoform gauze as a vaginal dressing in these cases, and in incisions or aspiration in parametric effusions, must be remembered.

I have recently seen a case with Dr. Threadgale, of Brondesbury, in which, in a presumable pregnancy of the second month, a hæmatocele reaching to within a few inches of the umbilicus was reduced to a mere parametric effusion. The local treatment consisted mainly in hot antiseptic douches internally, and Leiter's abdominal tube externally with iced water.

CHAPTER XIX.

FIBROID TUMOURS.

Etiology.—Little is known of the *causes* of uterine fibroids. They occur in women otherwise perfectly healthy. They often appear when no predisposing or exciting cause to account for their appearance can be traced. The period of life has much to say to their occurrence. We might anticipate this relationship if we remember the influence of ovulation and pregnancy on the uterine tissue. So uterine fibroids are found most frequently from the ages of thirty to fifty, and in married women. Still, they are frequently met with in the unmarried, and in women under thirty. There is the relationship also of cause and effect between uterine fibroids and sterility. They are both constantly associated with an old history of dysmenorrhœa. It will be found that in these sterile cases the cervix is frequently malformed and conoidal in shape. It is curious that the African races, in which malignant disease is not a common affection, should be so liable to fibroid tumours.

Pathology.—Fibroid growths of the uterus have their origin in the muscular and connective tissues in the wall of the uterus, and more especially those of the body. The term ‘fibrous’ is not strictly accurate. The name ‘fibromyoma’ expresses better the constitution of the tumour most frequently found. Some tumours present more of the character of the muscular, others of the connective-tissue elements. The tumour is proportionally hard, according to

its age and the development or preponderance of the fibrous tissue. A uterine fibroid may pass into different forms of degeneration; (*a*) fatty; (*b*) colloid or myxomatous; (*c*) calcareous; (*d*) suppurative and gangrenous. The most important change from a practical point of view, as it is very frequently met with and influences the diagnosis of fibroid disease, is the formation of cysts in the tumour. Cysts may form from (1) colloid or myxomatous degeneration of the connective-tissue; (2) hæmorrhagic effusion into the substance of the tumour; (3) œdema and effusion of serum, with separation of the fibres, and softening or liquefaction of the tissue, and the resulting formation of a cyst-like cavity; (4) fatty degeneration of the tumour. The transformation of a fibroid tumour into a carcinoma is extremely rare; the transition into a sarcoma of a malignant nature is not so very uncommon.

Varieties.—We may classify fibroid and sarcomatous tumours of the uterus—(1) according to their pathological character; (2) their situations:

(1) Fibroma.

Fibro-myoma.

Myo-sarcoma.

Fibro-myxoma.

Sarcoma.

Cystic sarcoma.

Myxo-sarcoma.

Cystic fibro-myoma.

(2) Fibroid tumour of the cervix.

Fibroid tumour of the body.

(*a*) Sub-peritoneal; sub-serous.

(*b*) Sub-mucous.

(*c*) Intra-mural; parenchymatous.

They are attached to the wall of the uterus either by a pedicle or by a broad base. The *sub-peritoneal* tumour

pushes the peritoneum before it. It may become detached from the uterus, or remain attached to it by a long pedicle composed of peritoneum and connective-tissue. The *sub-mucous* grows into the uterine cavity. If it is pedunculated, it is known as *fibrous polypus*. If it is parenchymatous, it may be *single* or *conglomerate*, encapsuled or non-encapsuled. The conglomerate may be formed by the fusion of a number



FIGS. 171, 172.—Interstitial and Subperitoneal fibroids—after Schroeder (Fig. 171), and Emmet (Fig. 172).

of small fibroid masses, which give to the tumour a lobulated appearance. They may lie in a capsule of cellular-tissue, or they may be simple outgrowths from the uterine wall, and continuous with and devoid of any capsular investment.

Diagnosis.—We distinguish a fibroid tumour of the body of the uterus by—

The history of the case.

Careful examination of the abdomen (see ‘Examination of a Case,’ and ‘Methods of Examination’).

Digital and bimanual examination (rectal and vaginal).

The uterine sound.

The diagnosis of fibroid tumours of the uterus is not always so easy a matter as it may appear. Twenty-three years ago I saw an excellent surgeon, after the preliminary incision for ovariectomy, fail in endeavouring to push a trocar into a solid fibroid of the uterus. Several experienced physicians and surgeons concurred in the diagnosis. By that lesson (the woman died the same day) I was taught the care with which in ambiguous cases we must arrive at a conclusion, or pronounce an opinion in many cases of abdominal tumours. While exercising all the care and caution that he possibly can, the surgeon might fall into error in some cases. Spencer Wells says ('Ovarian and Uterine Tumours,' 1882): 'In fact, it has happened to many surgeons, and to myself amongst the number, that we have commenced operations, as ovariectomy, and even removed tumours from the abdomen, under the impression that we were dealing with diseased ovaries, when, upon examination, they have proved to be pedunculate fibroid outgrowths from the uterus.'*

History of the Case.—These negative points are of importance: the tumour has not appeared suddenly; there have been no symptoms in the early history of the case of a febrile state; rarely is there any history of an injury.

* At the meeting of the Gynecological Society held on June 23, 1886, Mr. Lawson Tait exhibited 'a huge suppurating cyst, consisting of the dilated structure of the left kidney. The patient had been seen previously by Sir Spencer Wells, who had diagnosed fibroid tumour of the uterus, and by a distinguished London physician, who remarked that he did not think there was anything very much the matter. Dr. Milner Moore, of Coventry, was called in, and diagnosed a suppurating ovarian tumour. Mr. Tait saw the patient with Dr. Moore, and confirmed his view, with the extension that he believed the suppuration was due to strangulation and axial rotation. During operation all the opinions proved to be wrong, for the tumour turned out to be the left kidney.' The patient made an admirable recovery.

There has commonly been hæmorrhage; menorrhagia and metrorrhagia. This varies in degree. Occasionally the menstrual periods are irregular, and the discharge scanty. There may have been pelvic distress, and some trouble of the bladder and rectum. These pelvic symptoms depend in great measure on the position of the tumour, its size, and the rapidity of its growth. This is generally slower than in ovarian cystoma. There is not the same rapid emaciation of the countenance which we see so commonly in ovarian disease. Many women who have comparatively large uterine fibroids do not exhibit any marked change in the expression of the face, nor is the fibroid affection accompanied by the same pallor of the countenance that marks the growth of the ovarian cyst. The presence or absence of pain will in great measure depend on the position of the tumour, and the direction in which it grows. Periodical attacks of peritonitis, or interference with the functions of the bladder or rectum, or inflammatory changes in the tumour itself, will give rise to pain. Yet one often sees large uterine fibroids, the growth of which has not been attended by pain.

Differential Signs of Fibroid Tumour.

Enlargement of the lower portion of abdomen.

Enlargement of the superficial abdominal veins.

Sensation imparted on palpation—rather of a solid, symmetrical, and fixed tumour.

Tumour usually central, and the increase in abdominal measurement is most marked from the pubes to the umbilicus.

The uterine enlargement, even early in the disease, may be defined by palpation and percussion over the pubes. This is best affected by pressing the ulnar border of the hand deeply a little above the pubes, thus making

tense the abdominal wall, and pushing upwards the viscera. Vascular murmurs are frequently heard synchronous with the pulse.

By digital and bimanual examination, the uterus is found enlarged, either in its anterior or posterior wall. The extreme hardness may be at once apparent to the finger, or we may find two or three nodular enlargements; or the entire uterus may feel like a hard, immovable mass, fixed in the pelvis.

The os uteri is generally healthy, at times depressed; but more frequently, in advanced fibroid tumour, it has receded, and may not be reached by the examining finger.

There is occasionally characteristic hardness of the cervix, which may be felt, like the nipple of the breast, moving over a stony hard surface. This mobility of the conical cervix, independent of the enlarged body, is very characteristic of many cases of fibroid tumour.

The rectal and recto-vaginal examinations discover the enlarged, fixed and hardened uterus.

Negative Signs.

There is not (generally) any fulness or prominence of the umbilicus.

There is rarely (save in fibro-cystic disease) any fluctuation. If present, it is very different from the superficial wave seen in ovarian disease.

When there is a hard pelvic tumour, and at the same time evidence of the presence of fluid, we may suspect the fluid to be ascitic.

There are no uterine contractions.

The characteristic signs of pregnancy are absent.

The Uterine Sound.—We thus see that in a considerable proportion of cases we may feel satisfied of the nature of

the tumour without the use of the uterine sound. But this mode of examination is absolutely necessary to confirm the diagnosis in a great number of fibroid tumours. By it we learn (utero-abdominal, utero-vaginal, and utero-rectal methods)—

- (a) That the uterus is enlarged ;
- (b) That the tumour felt through the abdominal wall is an enlarged uterus ;
- (c) That the tumour is fixed or movable ;
- (d) To differentiate fibroid tumours from other pelvic enlargements or flexions of the uterus.

The uterine sound is passed into the uterus. The finger in the anterior or posterior fornix does not perceive the sound, and it is obvious that there is an intervening body between the finger and the sound. By the utero-abdominal and utero-rectal methods we verify the test. We thus distinguish an intra-mural fibroid from ante flexion or retro flexion.

Dilatation by Tents and Exploration.—In some cases, when still in doubt, we may have to dilate the uterus and explore the cavity with the finger. This might be required in such a case as that described by Schroeder, where the history pointed to a blighted ovum. On dilatation the tumour was discovered to be a hard fibroid. The same step may be required in chronic hyperplasia.*

Symptoms.—Uterine fibroid frequently exists, and yet there are no symptoms to attract attention during life. The presence of the tumour is only discovered in a post-mortem examination. The most important symptom is that of menorrhagia. This comes on gradually, at first as an in-

* The necessity for dilatation in the diagnosis of fibroid of the fundus or submucous pedunculated tumours has to be urged. Without dilatation and exploration with the finger it is often impossible to discover such growths.

crease of the menstrual period; after a time, this may amount to a flooding, or there may be irregular hæmorrhages. The loss of blood may threaten the life of the patient. Death has occurred from rupture of a uterine sinus. Large vessels do not generally enter a uterine fibroid, or at least only such as have no capsule, and which have an intimate connection with the uterine tissue. The blood is poured out by the congested mucous membrane of the uterus, and not by that covering the fibroid. Cervical fibroids do not, as a rule, cause hæmorrhage.

Pain.—This assumes, in many instances, the form of dysmenorrhœa, especially in the case of the cervical fibroid. Pain occurs from the weight and distension, and the pressure of the tumour on the viscera and nerves of the pelvis. It is frequently of a ‘bearing down’ nature.

Pelvic Symptoms.—Pressure on the bladder, rectum, and ureters produces frequent and painful micturition, constipation, and pain in defæcation, hydro-nephrosis, Bright’s disease, with uræmic symptoms.

Sterility.—This is a common consequence of uterine fibroid. Fibrous tumours may induce abortion, seriously complicate labour, and cause post-mortem hæmorrhage.

Results.

1. The tumour may attain a certain size and then remain quiescent, interfering but little with the health or comfort of the individual.

2. It may disappear spontaneously—this is extremely rare.

3. Spontaneous enucleation. The tumour is protruded through the lacerated or sloughing mucous membrane. It is thus uncovered, and is forced onwards into the vagina by the uterine contraction.

4. The tumour becomes pedunculated, and is extruded into the vagina in the form of a polypus; or it may, if sub-

peritoneal, become adherent, and remain either attached to some organ or lie loose in the peritoneal cavity.

5. Suppuration and gangrene. This may lead to perforation of the other viscera, peritonitis, and septicæmia. It may thus be disintegrated and discharged in fragments.

6. Inversion of the uterus. It is well to recollect that fibroid tumours, those having a broad base and connected with the parenchyma of the fundus, may cause, in their growth and extrusion, partial inversion of the uterus.

FIBRO-CYSTIC TUMOURS.

I hardly know any affection in the diagnosis of which the practitioner is more likely to fall into error, than in that of fibro-cyst of the uterus. I can recall to mind a few cases myself, in which, notwithstanding repeated and most exhaustive examinations, I have been mistaken. Still, this liability to err, with our improved knowledge, is becoming less each day. If the practitioner is resolved to take nothing for granted in the examination of a patient, and pass step by step by a process of exclusion to his final judgment, he will not be likely to make any mistake. Let us suppose that he has, say, to distinguish in a given case between ovarian tumour, pregnancy, and a fibro-cyst of the uterus. He must, when he comes to decide the question of fibro-cyst, side by side with the other two conditions, place especial value on these points:

1. The length of time the tumour has taken to grow, and its mode of growth.
2. In palpation, the irregularity or dense feel of the tumour in parts.
3. The obscure character of the fluctuation as compared with ovarian dropsy.
4. The exclusion of the signs and symptoms of pregnancy.
5. The depth to which the uterine sound passes.

6. The mobility of the tumour with the uterus, both with the uterine sound and bimanually.
7. A careful examination by the rectum and vagina of the tumour under an anæsthetic, in the bimanual method.
8. Aspiration and examination of the fluid.
 - (a) Its property of coagulating, spontaneously and by heat.
 - (b) The presence of Atlee's fibre-cell.
9. It may be necessary to make an exploratory incision: the colour of the uterine wall (dark red) is characteristic and quite distinct from the appearance of the cyst wall of the ovarian cystoma.

See also diagnosis of ovarian tumours.

Treatment, Palliative and Operative.

Its palliative treatment consists in the use of means calculated—

1. To reduce hyperæmia and congestion.
2. To control and prevent hæmorrhage.
3. To promote absorption of the tumour.
4. To subdue pain and relieve rectal and vesical distress, and reduce hyperæmia and congestion.

To reduce Hyperæmia and Congestion.—Internally, for this object we give such medicines as ergot (liquid extract); digitalis; iodide of potassium; bromides of sodium and potassium. Locally, we may apply the hot vaginal douche; scarify the cervix; use astringent tampons of tannic acid and glycerine; support the uterus with a Hodge's pessary; advise proper bathing (baths of iodine and bromine may be tried), and the use of such spas or waters as Kissingen, Kreuznach, Woodhall Spa.*

Sexual intercourse must be moderated, and especially it should be avoided about the menstrual periods.

* Tincture of hydrastis may be given internally, or the muriate of hydrastia, as advised for menorrhagia. The liquid extract is better suited for tampon. (See p. 344.)

To control Hæmorrhage.—The subcutaneous injection of ergotine, as recommended by Hildebrandt, is very efficacious in controlling hæmorrhage. I have injected as much as 15 grains of Bongean's ergotine, mixed with water and glycerine, into the gluteal region; but the average dose is 3 to 5 grains. The needle must be passed deeply into the muscle, otherwise we are apt to cause an abscess. Sclerotic acid may also be used subcutaneously (gr. $\frac{1}{2}$ to gr. i.). The solution of ergotine should be made fresh. Astringents may be given internally. The douche of hot water, 112° to 120°, should be used for ten minutes to quarter of an hour three times in the day.

Dilatation of the Cervical Canal with sponge or laminaria tents will be found a valuable means of treating hæmorrhage.

Incision of the Cervix, in the case of a cervical fibroid, and where there is dysmenorrhœa, is to be preferred.

To promote Absorption of the Tumour.—Ergot or ergotine, in the manner recommended, especially if the tumour be submucous or interstitial, and not very hard, may be tried. Perchloride of mercury; iodide of potassium; iodine baths. Electrolysis was advised by Cutter. The current is passed through the tumour by two strong steel electrodes, inserted at either side of the abdomen. Dr. Cutter has reported an arrest in the growth in thirty-two out of fifty cases treated in this manner.*

The name of Dr. Apostoli, of Paris, has now become prominently associated with the electro-caustic treatment of uterine fibromata. The student will find his plan of treatment fully detailed in the Chapter on Gynecological Electro-Therapeutics. The tumour is reported to diminish from one-third to one-half.

To relieve Pain and Rectal or Vesical Distress.—This must

* It is right to remember that Dr. Cutter for several years practised in various ways electrolysis, and his recorded results were most encouraging.

be subdued by bromides and sedatives. The tumour, if large and pressing on the pelvic viscera, should be pushed up out of the true pelvis. If the tumour be sub-peritoneal, great relief may follow this step. Special attention must be paid to the bladder and rectum. Any accumulation in the latter should be prevented. The occasional use of an enema will be indicated.

Special Operative or Surgical Treatment of Fibroid Tumours.

To favour enucleation—

Incision of cervix over the tumour 	{	Dilatation and incision of the cervix over the tumour favour expulsion of the tumour and check hæmorrhage. The cervix may be incised with a Sims's knife.
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Incision of the mucous membrane covering the tumour (knife or cautery) 	{	Sims's knife or a guarded bistoury or Paquelin's cautery-knife may be used. The cervix is first dilated. The incisions are made about an inch long and over a quarter of an inch deep through the mucous membrane. It might be necessary, should sloughing occur, to enucleate the tumour at once.
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<i>Enucleation by</i>	{	Thomas's spoon-saw; Marion Sims's enucleator, scissors, and fingers; Professor A. Simpson's nail curette; Emmet's nail enucleator.
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<i>Ecrasement</i> by	{ Chassaignac's chain écraseur, or Braxton Hicks's wire écraseur.	{ To remove a large uterine fibroid from the vagina, the author's polyp tome will be found convenient, or the instrument of Aveling.
<i>Avulsion</i> by	{ Volsellum forceps—'a relic of barbarous surgery' (West).	

Laparotomy—removal by abdominal section :

This operative procedure we may roughly divide into three stages—

1. Abdominal section ; arrest of hæmorrhage ; division of peritoneum ; exposure of tumour.
2. Ligation of spermatic and other vessels and the uterine arteries.
3. Amputation of the uterus ; fixing and dressing of the pedicle.

Operations of—				{	<i>Extra-peritoneal</i> : reduction of tumour by 'morcellement,' and application of Cintrat's serrenœud to pedicle.
Pean	...	...	...	{
Schroeder	...	...	...	{	<i>Intra-peritoneal</i> , and silk ligature.
Thomas	...	...	...	{	<i>Extra-peritoneal</i> , and clamp and cautery.
Hegar	...	...	...	{	By elastic ligature ; (1) constriction of the uterine stump ; (2) stitching of peritoneum to stump ; (3) cautery and chloride of zinc applied to stump.

Tait, Bantock, etc....

Extra-peritoneal : fixation of pedicle with Kœberle's or Tait's serre-nœud, which is left on for several days; the treatment of the pedicle and the time of removal of the serre-nœud being dependent on circumstances.

I must refer readers to the works of Emmet, Thomas, Sir Spencer Wells, and Schroeder, for a detailed description of these operations.

Electrolysis—as advised by Apostoli, Cutter, and others. (See Chapter on Gynecological Electro-Therapeutics.)

Bathey's Operation.^{*}—The operation of 'oöphorectomy,'[†] has now been performed many times for growing and bleeding fibroid tumours. Also it has been performed with success in similar cases where dysmenorrhœa has been the prominent symptom. The operation has been most successful in the hands of such distinguished operators as Thornton, Savage, Wells, Martin, Hegar, Goodell, Dr. Battey himself, and many others.

It consists in removal of both ovaries—by the vaginal or abdominal methods.

^{*} It is clearly proved (Battey, Wells, Peaslee, and others) that double ovariectomy does not unsex a woman. Dr. Battey, at the Congress of 1881, said : ' Perhaps no safer rule can be laid down to-day, by which one may determine in any given case the propriety of the operation, than by asking himself three questions, namely—1. Is this a grave case? 2. Is it incurable by any of the resources of the art short of the change of life? 3. Is it curable by the change of life? If all three of these questions can be answered affirmatively, the case is a proper one; but if not, the operation is not to be justified.

[†] Other indications for Battey's operation are chronic pelvic inflammation; hystero-epilepsy; ovaralgia, with mental disturbance; menstrosomania; ovaralgia, with menorrhagia; ovarian dysmenorrhœa; hydro-salpinx, pyo-salpinx.

At the International Medical Congress, 1881, Dr. Battey stated the mortality after 218 operations to be, for all diseases operated on, 18 per cent. He gave the following summary of results from the reports of various operations :

Summary of Results.

			Number.		Per cent.
Died ...	...	...	40	...	18
Recovered ...	...	...	178	...	82
			218		

Of the ultimate results reported :

Complete operations (removal
of both ovaries) :

Cured ...	...	...	88	...	72
Benefited ...	...	...	22	...	19
Not benefited ...	...	...	11	...	9
			121		

Incomplete operations (removal
of one ovary alone, or of
both ovaries imperfectly
removed) :

Cured ...	...	...	6	...	26
Benefited ...	...	...	10	...	44
Not benefited ...	...	...	5	...	22
Not stated ...	...	...	2	...	8
			23		

Tait's Operation. — This operation* should be kept distinct from that of simple oöphorectomy. Mr. Tait based his reasons for complete removal of the uterine appendages on his view that the Fallopian tubes were diseased, as well as the ovaries (pyo-salpinx and hydro-salpinx), in the great

* Tait's operation is described in the Chapter on Affections of the Fallopian Tubes.

majority of cases requiring oöphorectomy. I have recently had the subjoined summary of cases from Mr. Lawson Tait.

*Analysis of 2,568 consecutive Cases of Abdominal Section,
by Lawson Tait.*

	Cases.	Died.
Exploratory incisions	176	5
Ovariectomies (excluding clamp cases) ...	815	25
Removal of appendages for myoma ...	426	16
Removal of appendages for chronic inflammatory diseases (chronic ovaritis, hydro-, pyo-, and hæmato-salpinx)	557	23
Tubal pregnancy (all cases)	46	3
Battey's operation	8	0
Operations for tumours, cysts, hydatids, abscesses of abdominal viscera, other than above...	540	45
	<u>2,568</u>	<u>117</u>

Slightly over 4 per cent.

Mr. Bantock has kindly sent me the following statistics :

	Cases.	Died
Supra-vaginal hysterectomy by intra-peritoneal method	1	1
Hysterectomy, or removal of pediculated fibroid by intra-peritoneal method	3	2
Supra-vaginal hysterectomy by extra-peritoneal method	83	15
Hysterectomy, or removal of pediculated fibroid by extra-peritoneal method	13	—
	<u>100</u>	<u>18</u>
Hysterectomy by enucleation	7	4
Incomplete hysterectomy by enucleation	1	1
Total extirpation of uterus with large fibroid ...	1	1

Ovariectomy Cases.

1st hundred	19 deaths.
2nd „	14 „
3rd „	8 „
4th „	4 „
4 extra-uterine gestation	0 „

Though the number of surgeons who will be called on

to perform, or feel justified in attempting, any of these serious operations must always be comparatively small, it must ever be of importance to the practitioner to recognise those symptoms, on the presence or recurrence of which he will feel justified in recommending or acquiescing in such serious steps as removal of the appendages, enucleation or laparotomy. (I do not, obviously, refer to ovariectomy.)

The intelligent practitioner will refuse to be guided by the mere *ipse dixit* of any surgeon or specialist, no matter how distinguished, when a patient places the responsibility of life and death in his hands. Nothing is more deplorable in these days of attenuated specialities than the growing tendency on the part of the intelligent practitioner to relinquish his independent judgment before the assumed omniscient skill of some specialist. By all means let him give to that skill and enlarged experience all the weight they deserve, but let him not blindly and without sufficient reason hand his patient's life over and absolve himself of a responsibility that he cannot place on another's shoulders. If this spirit were more often manifested than it is at present, we should have less of that growing disposition on the part of the public to widen still further the gulf between the consultant and the general practitioner.

Indications for enucleation and laparotomy, when there is no choice save between a fatal issue and operation :

- Large size of tumour ;
- Severe hæmorrhage ;
- Great suffering ;
- Suppuration.

There can be little doubt that with the improved methods of operating and the employment of Listerism, removal of fibroid tumours will be much more frequently practised in the future than in the past. In a conversation I have had with Dr. Bantock on this subject, he added another

important consideration in deciding for or against operation to those just given—one that we cannot omit—that is, the occupation of the patient and the necessity for earning her bread. Even so skilful a hand fully recognises the care and discrimination to be taken before hysterectomy for myoma is urged.

We can judge fairly of the mortality attending removal by every method, from the following statistics :*

Bantock (1883) ...	22	operations,	2	deaths.
Wells ...	39	„	20	„
Schroeder ...	66	„	20	„
Thomas... ..	9	„	3	„
Pean ...	46	„	16	„
Bilroth ...	25	„	15	„
Keith ...	25	„	2	„
Tait ...	30	„	10	„
Hegar and Kaltenbach	12	„	1	„
Total	274		89	

When we reflect on the more than brilliant results of the renowned Edinburgh surgeon and ovariologist, two deaths in twenty-five cases, we may well ponder over the closing words of his communication in the *British Medical Journal*, December 8th, 1883: ‘After all, the great difficulty is not in doing these things, but in knowing what are the cases in which we are justified in advising those who trust themselves to us to run the risk of a dangerous operation with all its attendant miseries. Could we get the mortality down to 5 per cent. in the bad cases—and these only are the fit subjects—we might then advise interference with a

* These statistics are compiled from results recorded to different dates. Obviously, as in the case of Bantock (see preceding table), they would be materially influenced by subsequent results.

more easy mind. I am not sure if we can so advise, if the mortality cannot be kept below 10 per cent.' One fact all surgeons who attempt these operations must recollect.

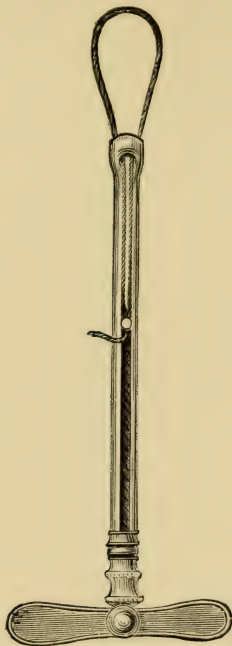


FIG. 173.—Serre-nœud.

The mortality in most instances bears a direct ratio to the manipulative skill of the operator and his experience of the operation.* Dr. Keith's letter to Dr. Mundé (published in the *British Gynecological Journal*, 1886, vol. ii., p. 439) is a most important declaration of opinion, coming from such a source. 'I never,' he says, 'do any but large tumours, for which there seems no other remedy, and then usually only

* It must be remembered that the early mortality of the operation was much greater than it is now.

when they are not very old. The large tumours seem to have quite disappeared from here. Look at it as you may, hysterectomy is a very risky operation, *and the natural history of mortality of fibrous tumours is practically nil*. I have worked among them for the last thirty years, and that is my experience.' Another expression of opinion on Dr. Keith's part is worth quoting here: 'Does a mortality,' he asks, 'of 8 per cent. justify an operation for a disease that, as a rule, has only a limited active life—that torments simply, and that only for a time, though of itself it rarely kills? The mortality of an ordinary uterine fibroid, if left alone, is nothing approaching a death-rate of 8 per cent. Most of the cases on which I have operated were known to me for years before; only the extreme cases were done. In nearly all, the lives were useless, and the risk of operation was clearly understood. Considering the nature of the cases, it seems to me that these operations were, perhaps, justifiable; and if these were barely justifiable, what can be said of those ghastly lists of hysterectomy where the mortality is one death in every two, one death in every three, or even one death in four or five?''*

Syrup of Lactophosphate of Lime and Syrup of the Hypophosphites.
—Dr. Bedford Brown reports favourably of the prolonged use of these syrups given in \mathfrak{z} i. doses three times in the day. I have frequently given *Fellows' Syrup* in cases in which the system is debilitated from recurrent hæmorrhage in fibroids, and find it an admirable restorative and tonic.

Hydrastis Canadensis.—My success with hydrastis has been uncer-

* See Dr. More Madden's lectures on Uterine Tumours, *Provincial Medical Journal*, September and October, 1887.

tain. I have given it in a number of cases, both as tincture, fluid and extract. A useful mixture for checking hæmorrhage is—

- R. Acid sclerotic, gr. iv.
Tinct. digitalis, min. lxxx.
Tinct. hydrastis Can., ℥ss.
Tinct. matico, ℥ss.
Elix. saccharin, min. xxx.
Inf. matico ad ℥viii.

One-eighth part every third or fourth hour.

The liquid extract of ergot (℥ss.) may be substituted for the sclerotic acid, and tincture of strophanthus for the tincture of digitalis, or the strophanthus may be given in combination with the latter.

Messrs. Burroughs and Wellcome have made for me tabloids containing—

- Muriate of Hydrastia, gr. ¼.
Ergotine, gr. ss.
Cannabin Tannatis, gr. ss.

One or two as dose three times in the day.

Fibromitis.—Under this name Ménière has drawn attention to an interstitial inflammation of fibroids, caused either by injury, exposure to cold, or occupation. There are the premonitory symptoms of inflammation—local pain and tenderness, general malaise, and constitutional disturbance. These are attended by rapid enlargement of the tumour. Symptoms of pelvic peritonitis may supervene. If suppuration occur the usual symptoms of a forming abscess attend on it. Such an abscess may involve the adjacent viscera. The course of this disease is tedious, though the prognosis is generally favourable. The affection must not be confounded with hæmatocele, pelvic peritonitis, or renal or hepatic colic.

Complication of Pregnancy with Fibroma.

The possibility of pregnancy and fibroma of the uterus co-existing must not be forgotten in making a diagnosis, especially in those cases in which we are assured of a rapid growth of the tumour. We must not either be misled by the fact that the catamenia may have appeared. We may be confronted with a case in which the existence of pregnancy is not suspected, the presence of a tumour alone being recognised; or one in which the woman has been ignorant of the presence of a tumour, and attributes her symptoms to pregnancy. Or, again, we may be called to a case in which the woman, though cognisant of the presence

of a tumour, fancies (through the cessation of the menstrual act) that she has become pregnant. Such a case I have recently seen in consultation with Dr. J. Hill Gibson. The patient had passed two menstrual periods. She had had abdominal pain and sickness. The symptoms described as those of *fibromitis* were present. On examination it was discovered that she had a large and irregular fibroma. The decision on the question of superadded pregnancy was rightly deferred. Often such outgrowths cause considerable displacement of the pregnant womb, and may give rise to doubts as to the normal character of the pregnancy and the position of the child.

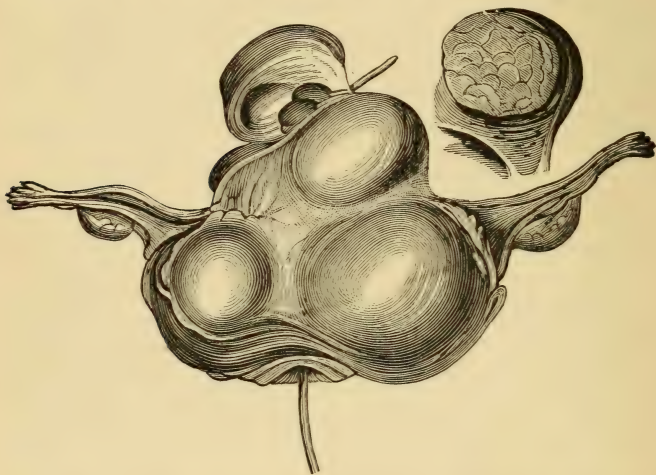


FIG. 173a.—Interstitial Fibromata occurring in a uterus in which triple conception occurred, delivery being effected at the ninth month. Three large myomata occupy the entire uterus; a fourth grows from the fundus, to which three smaller ones are attached—one of these is becoming pediculated and subperitoneal. There was no rupture.

I was sent a case some time since as one of tubal pregnancy, the projecting tumour in the left iliac fossa being mistaken for the extra-fœtation. The child was in utero, though at the period of pregnancy—the commencement of the fourth month—it was very difficult to pronounce positively, more especially as the woman was uncertain of the time of conception from irregularity of the menses. I am indebted to Dr. James Byrne, of Dublin, for the annexed drawing of an interesting

case, the particulars of which are recorded in McClintock's 'Diseases of Women,' pp. 116, 117. It represents a uterus affected with interstitial fibromata, which was taken shortly after death from a woman in the Rotunda Hospital, Dublin, and which is in its museum. There was a triple conception, gestation being prolonged to the ninth month. On September 22, 1858, the mother was delivered of a dead female child. She was brought to the Rotunda, where a second child was born alive, the third child being extracted. She died in three hours of collapse.

CHAPTER XX.

CANCER OF THE UTERUS.

Etiology.—Cancer of the uterus may occur in the body or cervix. It is either medullary, epithelioma, or scirrhus. The most distinguished pathologists have been divided in opinion as to whether cancer is primarily a local disease—one of the peculiar characteristics of which is to rapidly invade the system through the blood and lymphatics—or if it is but the local manifestation of a constitutional or general blood-state. The weight of evidence, both clinical and pathological, appears to me to be on the side of those who hold the former opinion. We must admit that there is much truth in both these views. It is certain that in many persons there is a constitutional vice present long before the malignant tendency manifests itself, and the hereditary nature of the disease in some few cases would seem to substantiate this view. There are peculiarities connected with the malignant tendency in some organs, as in the breast, the penis, the lip, the scrotum, which appear strongly to favour its local origin. On this interesting question, however, we cannot enter here.

Age.—The tendency to cancer of the uterus increases after thirty years of age; the largest proportion of cases occurring during the menopause, from forty to fifty, and in married women—excessive sexual intercourse acting, it is believed, as an exciting cause. Yet, as Schroeder remarks, ‘prostitutes have no special tendency to cancer of the uterus.’ Nor does it seem that the popular belief in the hereditary character of the disease has much foundation in fact. These statistics, cited by Schroeder, are of interest :

Of 1237 women attacked with cancer, 753 were from 40 to 60 years of age ;

Of 1000 Vienna women attacked, 771 were married or widows ;

Of 948 women affected, in 78 only was it hereditary.

Influence of Age and Marriage on the causation of Cancer.—Eckhardt has noted a case of carcinoma of the cervix in a virgin of 19 ; Bieget, at 19 ; Glatter, at 17 ; Schanta, at 16 ; Mundé, at 23 ; and Rosenlein, at 2 years.

These are some of the earliest occurring instances of carcinoma on record ('Annual Universal Medical Sciences,' 1888).

The consensus of opinion is in favour of the predisposing influence of laceration and labour in causing malignant disease of the cervix.

It would appear from the statistics of Simpson, Kiwisch, and others, that in one-third to two-thirds of all cases of cancer, the uterus is the organ affected.

Of the forms of cancer, encephaloid, epithelioma, and scirrhus, the last-named variety is very rare—I have only seen, out of the many cases of malignant disease of the uterus I have had under my care for twenty years, one well-marked, and one uncertain, case of scirrhus of the womb.

Varieties.—Medullary Cancer.—Dependent upon the relative proportion of connective-tissue elements and epithelial cells contained in its trabecular framework, we describe the cancer as hard or soft. In the medullary cancer there is a preponderance of the epithelial masses of cells, which form plugs in the uterine tissue, under the mucous membrane, invading the areolar elements. This invasion proceeds, both in an outward direction, and inwards towards the cavity of the uterus. The areolar structure is compressed by the great growth of cells, which ultimately soften, degenerate, and break down into cancer-juice. This process of cell-proliferation involves, after a time, the vaginal roof, and then begins that peculiar fixation of the uterus so characteristic of malignant disease. This infiltration may extend beyond the vaginal roof, attack the pelvic viscera, and reach the lymphatics. For a considerable time the ulceration may not reach the body of the uterus, destroying

only the cervix; but ultimately the body of the womb is invaded. This cell-growth leads to death of the areolar tissue, softening, and ulceration.

Meantime the vessels supplying the cervical villi have increased in size; these latter have also become enlarged and hypertrophied. A papillomatous condition is the result. These papillæ, situated on a hardened and infiltrated base, are prone to bleed. Commencing as papillary hyper-

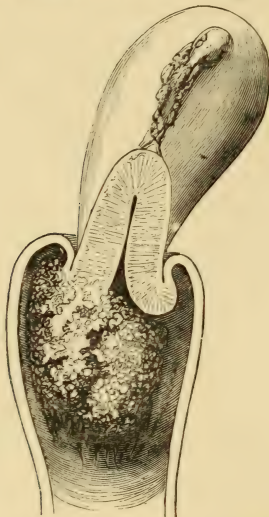


FIG. 174.—Cauliflower excrescence growing from Cervix Uteri (after Sir J. Simpson).

trophy, the malignant type is assumed sooner or later, by the commingling of the characteristic nests or 'comedons' of epithelial cells, which form plugs in the submucous tissue. Rapid cell-proliferation, great increase in the villi, enlargement of the vessels, and accompanying degeneration and liquefaction of the cells, result in a sprouting or vegetating papillary growth, known as *cauliflower excrescence*.

Carcinoma and Epithelioma.—Some authors (following Lebert) still distinguish carcinoma from epithelioma, or canceroid. The distinction is of some clinical importance. The pathological grounds of this classification cannot be thoroughly discussed in a work such as this. Dr. Galabin has made a careful examination of thirty-four cases of cancer of the cervix, and he has described the histological character of canceroid growths as most variable. He has found, as the exception, the epithelial globes, or birds-nest bodies. The



FIG. 175.—Scrapings from Cancer (Hart and Barbour).

characteristic cemented or 'cogwheel' appearance of the epithelium has been generally present in the epithelial masses—squamous in character, and bounded by 'a regular margin of columnar-like cells.' In older portions of the growths there was no cell-border to the masses. They were more or less detached from each other, in groups, and the intercellular substance was absent. Both the cells and nuclei varied considerably in the arrangement of the former and

the size of the latter. In a small number of cases there was evidence of cell-proliferation of the mucous glands. In a tenth of the entire cases examined the structure was that of sarcoma or lympho-sarcoma. According to Hart and Barbour we may group together the researches of Klebs, Waldeyer, Virchow, Ruge and Veit, and trace the origin of all these malignant growths, either to (a) the cervical epithelium of the cervical glands; (b) the deepest layers of squamous epithelium on the vaginal aspect of the cervix; (c) the connective-tissue cells of cervix; (d) the epithelium of the cervical canal.

The three accompanying drawings are sections of growths removed by me from the interior of the uterus by the curette. All were treated in the same manner. The uterus was dilated thoroughly, the curette freely used, and then, when bleeding was arrested, a solution of chromic acid (3i.—3i.) was applied on the cotton-wool holder to the cavity. Periodical applications of carbolized iodine were subsequently made.

Mrs. —, aged 44, seen with Dr. Douglas Lithgow, of Lowndes Street, December, 1884: Peculiar hæmorrhagic tendency; epistaxis frequently; hæmoptysis on and off; hæmorrhage from bowel; slight pressure of finger on skin produced ecchymosis; a linseed poultice leaves a large livid surface; profuse menorrhagia at times; syphilitic history and some stillborn children; specific affection in 1867; any digital examination of uterus produced violent bleeding, necessitating the tampon. After palliative treatment without avail for a little time, the uterus was fully dilated and a fungoid mass was discovered filling the fundal cavity. This was removed with curette and Sims's knife, and chromic acid solution was applied. The section (Fig. 176) shows the character of the mass removed. Recurrence after a period of quiescence took place, and the same treatment was again

adopted. The disease soon involved the entire cervix and the vaginal roof. Death occurred in about eighteen months from the time I first saw her.

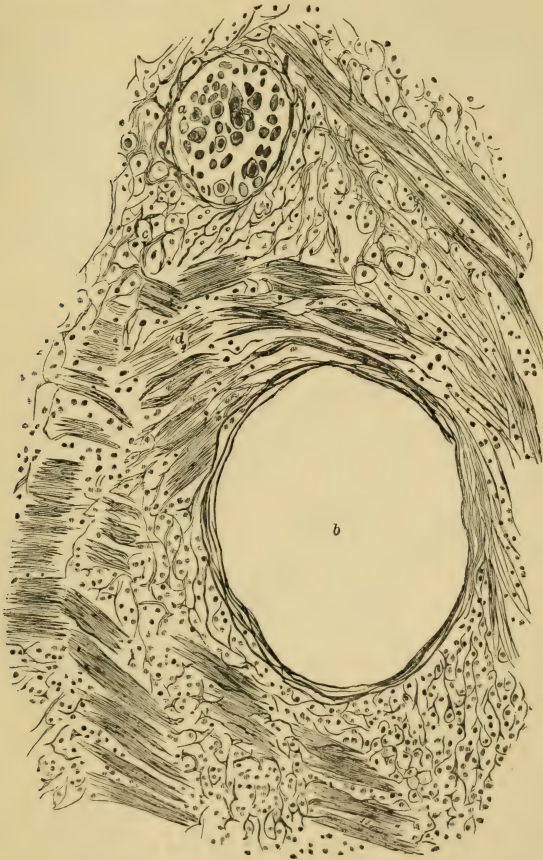


FIG. 176.—*a*. A collection of round and irregular large and small cells. *b*. Large space, probably vascular. *c*. Loose, succulent connective tissue, many of the cells branched, and looking like myxoma cells. *d*. Spindle cells and fibres, probably developed from *c*.

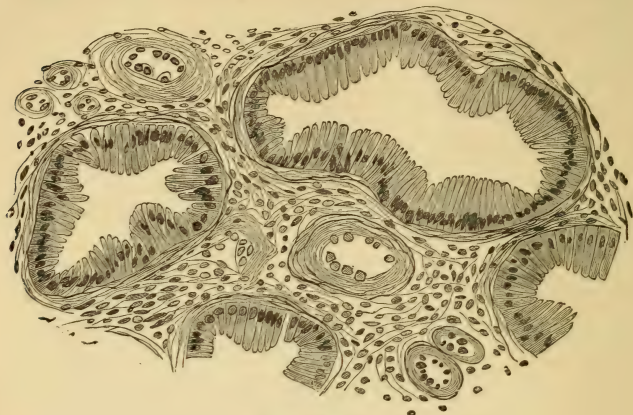


FIG. 177.

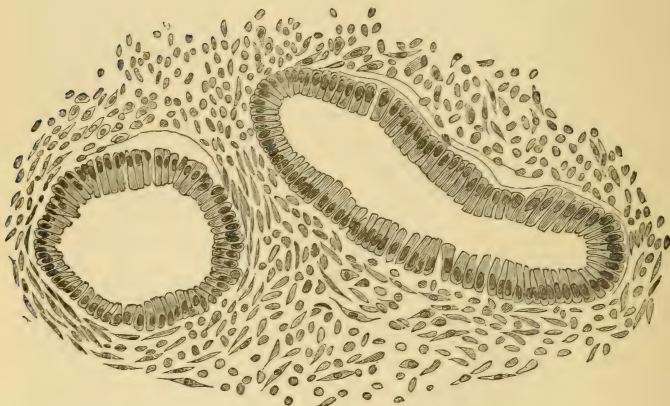


FIG. 178.

Sections showing glandular alveoli lined with columnar epithelium ; matrix of embryonic connective-tissue and bloodvessels in section. [In the portion figured there is no evidence of epithelial proliferation or encroachment into the surrounding tissue ; other parts of the sections, however, show these conditions—*i.e.*, an approach to epithelioma.] See p. 356.

Mrs. — seen with Dr. Ensor of Kensington, July, 1885: Fungoid-looking mass protruding from cervix; on dilatation same growth found filling cervix, and also fungoid state of fundal mucous membrane. With Dr. Ensor I cleared the fundus with the curette, and applied chromic acid solution, he using carbolized iodine dressings subsequently. The section shows the nature of the growth removed. There has been no return of the disease. I subsequently operated for hæmorrhoids. When I examined the uterus in 1889 it was quite healthy, and there was no discharge.

Mrs. —, aged 36, consulted me in May, 1885, for slight coloured discharge and ovarian pain; had been treated for uterine enlargement and inflammation. On examination I found the os uteri filled with a mass of a raspberry appearance, bleeding on being touched. On 30th May I dilated the uterus and found the same character of growth (Fig. 178) above the cervical canal and filling the fundus. With the curette and knife I completely removed the entire mass. I applied chromic acid (3i.—3i.) to the cavity subsequently, and dressed with iodized phenol. She is at present in perfect health, and suffering in no way.*

The clinical distinction of cancrroid and carcinoma is said to be found in the comparatively slow progress of the cancrroid or epithelioma, the more superficial situation of the latter disease in the early stage, and its spreading character. Carcinoma is more rapid in its progress, and affects by metastasis the pelvic and lumbar glands and distant organs, as the lungs and liver. The 'rodent,' 'cancroid,' or 'corroding' ulcer of Clark is a rare form of malignant ulceration. In it there is a rapid molecular death of the tissues, without any induration. Extensive ulceration is the main feature, often continuing for years before death occurs. The 'cauliflower

* I am indebted to Dr. Phineas Abraham for a pathological report on these cases.



FIG. 178b.—Surface of Cervix, showing epithelial ingrowths. (Case of Author ; high amputation—death fifteen months subsequently).

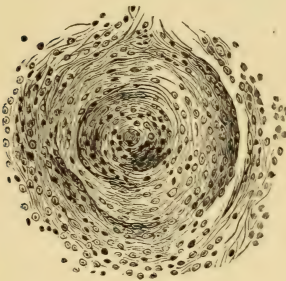


FIG. 178c.—True 'nest.'
(Same specimen.)
a, Fig. 178b.

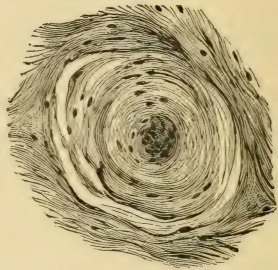


FIG. 178d.—Fasciculated connective tissue. (Same specimen.)

'The growth is a typical example of epithelioma, anastomosing prolongations, "tubular" and irregular, extending from the surface epithelium of the os into the subjacent tissue (Fig. 178b). In several of these epithelial encroachments, centripetal collections of young cells—the so-called "nests"—are formed (Fig. 178c), or in process of forming. In some of these the central (newest) cells are very large, succulent, and rapidly dividing. In the tissues—fibrous and muscular—which surround the heterogeneous epithelial ingrowths, the usual small-celled inflammatory infiltration, characteristic of these malignant growths, is evident in several places.' (Abraham.)

excrescence,' or malignant vegetating papilloma, has been already briefly referred to. While the differentiation, clinically, of the different forms of epithelial cancer becomes almost impossible when the disease has lasted for any time, and ulceration has extended widely and deeply—the distinctive characters of *scirrhus*, in its slow progress, the hard and nodular nature of the growth, and the small discharge that attends its earlier stages, are quite apparent.

Causation.—I have not yet followed a case in which pre-existing cervicitis, whether catarrhal or granular, has led up to malignant disease of the uterus. The presence of lacerations of the cervix in some cases may be fairly looked on as a mere coincidence of the multiparous uterus; the strongest predisposing cause unquestionably being repeated pregnancies. Race seems to exert considerable influence, judging from the comparative but by no means complete immunity of the negro races. The predisposing influence of heredity and age has been already noticed.

Symptoms and Physical Signs.—Cancer of the cervix uteri has, as a rule, four symptoms, so characteristic that it is well to group these in the first place together. They are:

- Pain ;
- Hæmorrhage ;
- Fœtid discharge ;
- General cachexia.

But the first important clinical fact connected with the symptomatology of malignant disease of the uterus, which it is right for the practitioner to keep in mind, is cancer of the womb, whether of cervix or body, may exist for a considerable time, and many or all of its characteristic symptoms remain in abeyance. I have seen extensive carcinoma of the cervix on several occasions, where the first thing complained of was hæmorrhage. This led to an examination, and the cancerous state was recognised for the first time.

A few years since I saw, with Surgeon-Major Robert Corbett, a patient with a large malignant excavation of the cervix; she had consulted him for severe menorrhagia, which necessitated plugging and the use of ergot subcutaneously. She had not previously consulted anyone for the uterine trouble. There was an old history of syphilis. She declared that she had no pain, and the only thing she had noticed was an occasional slight flooding. This she attributed to her '*change of life*.' The vaginal roof was not involved, but the entire cervix was excavated, and bled profusely on examination. Only lately had she noticed the foul odour from the discharge. There was no marked cachexia, and nothing to attract attention.*

The pain of cancer is generally of a burning or lancinating nature, and is especially felt at night. Early in the disease coitus is painful, and the uterus sensitive. At other times intercourse gives rise to no pain. As the disease spreads to the vagina the pain is increased, and is more aggravated. It is felt with the movements of the bladder and rectum, and prevents sleep. Later still, the pain becomes intolerable, and the patient craves for morphia and sedative injections.

Hæmorrhage.—In the earlier stages of the disease, this is the most frequent symptom. At first, it may be simple menorrhagia. The menstrual flow is increased. Perhaps there is some slight bleeding with intercourse. But after a time it becomes metrorrhagic in character, and there is either a constant or periodical discharge. The half-watery, partly bloody, somewhat foetid and erratic nature of this discharge in the earlier stages of malignant disease is

* I have since seen two cases of an exactly similar nature, in which no pain was complained of, and the patients first sought advice when it was found too late to propose any operative measures, the peritoneal structures being involved, and Douglas's sac.

always sufficient in itself to arouse suspicion. Finally, the tendency to menorrhagia may be the symptom most urgently demanding attention.

Fætid Discharge.—I think it may be laid down as a safe rule in gynecological practice, polypus and pregnant conditions being excluded, that if there is hæmorrhage with fœtor, we should always be suspicious of malignant disease. The fœtor resulting from the putrescence of the disintegrating uterine tissue we may look on as the most invariable accompaniment of cancer of the womb. The patient herself soon becomes aware of the odour. In the final stages of the disease, if not controlled, it pervades her clothes, and the room in which she is confined.

General Cachexia.—Sooner or later the involvement of the system in the affection, brought about by the pain, sleeplessness, anxiety, pelvic visceral trouble, loss of blood, and constant discharge, manifests itself. There is general emaciation, and the face has the anxious, painful, and worn expression common to cancer elsewhere. In protracted cases there is a discoloured, almost icteric tint.

Physical Signs.—In the early stages of malignant disease there is not much to rely on as distinctive of malignancy. The hardness of the cervix, or the increased sensitiveness and slight hæmorrhage, are not in themselves sufficient to justify any positive decision. But the local conditions after a time leave little room for doubt. The soft and friable cervix, with the everted and hardened rim of cervical tissue; the proneness to hæmorrhage even on a slight examination with the finger; the detection of fœtor; the fixed uterus; its ragged and excavated appearance, or a vegetating, fungus-like and bleeding mass, seen with the speculum, are not, with any exercise of care, to be mistaken for laceration, erosion, areolar hyperplasia, or sloughing polypus. If the bladder and rectum are involved, the distress be-

comes great, and the woman's cup of suffering and misery is filled to overflowing, release from which is only to be had in death.

In some instances where a doubt exists, early in the disease, between a benign and malignant condition, the microscope should be brought to our aid, and a small section removed and carefully prepared for examination. The typical appearances of the stroma, alveolar spaces, and nucleated cell, will enable us fairly to decide as to the malignancy or otherwise of a growth. Yet this must ever be looked on as only one of the several proofs of malignancy on the one hand, or benignity on the other. I have quite recently had several sections carefully made of a mammary tumour I removed for suspected scirrhus. In parts, the elements were those of scirrhus; in parts, of adenoma; while the greater portion examined presented the typical microscopical appearance of a cystic sarcoma. In those cases in which we resort to the microscope in uterine disease, to decide this question, it is often difficult to obtain sufficient tissue to enable us to exclude the possibility of malignant infiltration. There is in uterine cancer the same tendency to return, after removal, that stamps the disease in other parts. As it progresses, the general clinical features will depend to a great extent upon the degree to which other parts or organs are involved, and the accidental complication which may arise.* The rectum and bladder, the pelvic and general peritoneum, the pelvic veins, and lymphatics, may each in turn be attacked. Septicæmia, parametritis, peritonitis, phlebitis, or pneumonia may follow.

Early Physical Appearances.—Stratz has drawn special attention to the colour of the excoriated surface early in the disease :

- (a) A yellowish-red granular surface ;
- (b) A slight yellowish discoloration ;
- (c) Yellowish-white, glistening, granular bodies over the surface of the cervix.

* As, for example, uræmic symptoms from the involvement of the ureters, and death by coma.

I have frequently noted this discoloration in cases of threatening cancer, as also the dark red, swollen proliferation of one lip, pretty sharply defined and somewhat elevated, described by Stratz. The vaginal mucous membrane appears also to partake of this process of discoloration and infiltration ; it assumes a yellowish or mottled look, and has rather a smooth leather-like surface and feel.

In an able paper on the differentiation of fungous endometritis, Dr. Heitzman (New York) says :

'It is a matter of frequent observation that it is extremely difficult to diagnose accurately some of the conditions resembling fungous endometritis. In the above paper, the differential diagnosis from a clinical point of view is not discussed, but from repeated microscopical examinations made upon diseased conditions of the endometrium the author concludes :

'1. Endometritis fungosa is characterized under the microscope by the presence of a varying number of tubular utricular glands, the epithelia of which are columnar, ciliated, but always unbroken.

'2. In endometritis fungosa the connective-tissue between the tubular glands may be crowded with lymph-corpuses, exhibiting a hyperplasia of the adenoid or lymph-tissue of the uterine mucosa, or the interstitial tissue between the tubules is found to be myxomatous or even fibrous in nature. These differences probably depend on the age of the patient.

'3. Polypous tumours consist of myxomatous tissue, and are properly termed myxomata ; or, if bundles of a delicate fibrous connective-tissue enter the structure, fibro-myxomata. Glandular formations in such tumours are, as a rule, scant or absent ; they not infrequently contain cysts.

'4. Sarcoma—especially in its earlier stages—occurs under the clinical symptoms of fungous endometritis, mostly diffused ; and the correct diagnosis can be made with the microscope only when the epithelia of the tubular glands, either the original or newly-formed, are destroyed by the sarcomatous growth.

'5. In sarcoma the epithelia of the utricular glands are transformed into sarcoma corpuscles, either directly by a process of division, or through the intervening stage of a coalescence into granular protoplasmic masses.

'6. Papilloma of the uterine mucosa does occur in exactly the same way as on the mucosa of the urinary bladder. This form of tumour is extremely rare.

'7. Adenoma is a rare form of tumour, sometimes appearing under the clinical features of fungous endometritis. It consists of a new growth of the utricular glands in a plexiform arrangement with narrow calibres. The connective-tissue between the epithelial formations is fibrous and scanty.

'8. Cancer appears in the uterine mucosa in the form of epithelioma and medullary cancer. The utricular glands are not directly formed into cancer nests, but the epithelia of the utricular glands first break up into medullary corpuscles or into larger masses of protoplasm, from which the cancer epithelia arise.'

Differential Diagnosis.—Cancer of the cervix has been mistaken for :

Laceration, with erosion and granular degeneration of the cervix.

Papillomatous growths (benign).

Hyperplasia of cervix. Sarcoma.

Syphilitic ulceration. Follicular hypertrophy.

Polypus of the cervix. Intra-uterine sloughing fibroid.

Our diagnosis must depend on these clinical facts :

1. The comparatively rapid history of the case.
2. The absence of other proofs of syphilis.
3. The age of the patient, and the evidence of heredity.
4. The presence of the characteristic symptoms and signs of malignancy : especially—pain, hæmorrhage, ichorous leucorrhœa, fœtor, rectal distress, and pain on defæcation.
5. Immobility of the mucous membrane on the sub-adjacent tissue—early in the disease (Waldeyer)—and fixation of the uterus. Later on, the resistance of the cervical canal to the action of a sponge-tent (Speigelberg).
6. The involvement of the adjacent vaginal wall.
7. The tendency to resist treatment, and to return after removal.
8. The cachectic appearance of the patient.
9. The physical condition, as felt with the finger and seen through the speculum.
10. Evidence of metastasis, and of malignant growths elsewhere.
11. The microscopic appearances.

Prognosis.—This is, as a rule, most unfavourable. The average duration of life in cases of cancer of the cervix is from twelve or eighteen months to three years. Such a termination as *spontaneous recovery* has been recorded. But

this is so rare that its possibility, for practical purposes, is hardly to be taken into consideration. On the other hand, if the disease be detected early, and a radical cure be attempted by removal of the diseased tissue and the free use of the cautery, we shall in all probability prolong life, if we do not succeed in curing the disease. Death ultimately takes place from exhaustion, at times from septicæmia or peritonitis, occasionally from hæmorrhage.

Treatment.—We may divide the treatment under the heads of ‘Radical’ and ‘Palliative.’

Radical.—Recamier’s vaginal hysterectomy.

Supra-vaginal hysterectomy (Schroeder’s operation).

High vaginal amputation of cervix.

Sims’ operation and caustic.

Simon’s spoon or *écraseur* (Figs. 179, 180), and solution of bromine (Schroeder).

Simon’s spoon and cautery.

Abdominal extirpation of the uterus (Freund and Schroeder).

Palliative.—The use of Paquelin’s cautery.

Chloride of zinc.

Chromic acid.

Potassa fusa.

Nitric acid.

Carbolic acid.

Chlorate of potash.

Chian turpentine, internally (Clay).

Sedatives, internally:

Opium.

Morphia, subcutaneously.

Nepenthe.

Chloral hydrate.

Bromides.

Cannabin.

Hyoscyamus.

Sedatives, locally :

Belladonna and morphia suppositories.

Anodyne washes.

Vaginal pessaries.

Antiseptic and disinfectant vaginal washes :

Condy's disinfectant.

Chloral hydrate.

Carbolic acid.

Thymol.

Chloride of zinc.

Sulpho-carbolate of zinc.

Tincture of iodine.

Astringents :

Perchloride of iron.

Sulphate of iron.

Tannic acid.

Alum.

Acetate of lead.

Attention to the Rectum.—The state of the rectum is of great importance. The occasional use of enemata, saline water, aperient confections and soft food, will do much to prevent the accumulation of scyballæ and consequent pressure on the diseased part.

Amputation of the cervix is performed either with the galvanic *écraseur*, the wire or chain *écraseur* (Fig. 181), scissors, or Sims's uterine knife. In all these operations the dangers to avoid are—(a) Hæmorrhage, (b) encroaching on the bladder or rectum ; and the most important points to attend to are—(c) complete removal of the diseased tissue by cutting through to the healthy structure outside it ; (d) the destruction of any infiltrated tissue after removal of the disease by the *écraseur*-knife, or by the free use of caustic or cautery.

The best position to place the woman in is the semi-prone or the lithotomy one. The patient is anæsthetized.

In using the galvanic *écraseur*, after the uterus is thoroughly

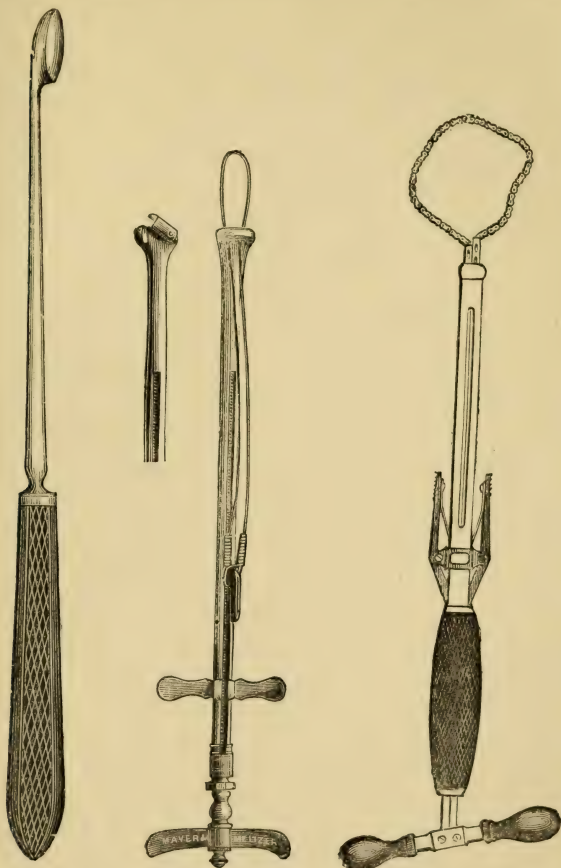


FIG. 179.—Simon's sharp Spoon. FIG. 180.—Écraseur. FIG. 181.—Chassaignac's Chain Écraseur.

exposed, the cautery loop is slipped on cold and pushed as far as possible on to the healthy tissue; the current is

made, and the wire is tightened slowly; slight traction is made while it cuts through, so as to secure a funnel-shaped stump (Byrne of Brooklyn). After removal, an antiseptic or, if necessary, a styptic tampon is placed in the vagina.

In using the chain or wire *écraseur*, the uterus has to be first drawn down and fixed by volsella. The screw must be worked slowly. It is better to treat the stump with Paquelin's or the iron cautery.

The steps of Marion Sims's method are as follows: (1) The removal of the bed of the diseased mass in the supra-vaginal cervix with the knife, scissors, or spoon. (2) The cavity is dried, cleaned, and prepared for the styptic application. (3) The dried cavity is plugged with cotton-wool, which is squeezed, nearly dry, out of subsulphate of iron solution, or weak solution of carbolic acid saturated with powdered alum. The upper part of the vagina is packed with the same, and the lower portion with simple carbolic solution. In five days the plug is removed. A solution of five drachms of chloride of zinc to the ounce is now prepared. Some pledgets of cotton-wool are squeezed dry out of this and packed into the uterine cavity. Pledgets of cotton-wool soaked in a carbonate of soda solution are used to plug the upper part of the vagina. The cotton-wool with the chloride of zinc is removed in five days.

Schroeder performs two operations, one an infra-vaginal, the other a supra-vaginal amputation, of the entire cervix. In both these operations the knife is used, and the wounds are closed by sutures. In the infra-vaginal operation, having first created anterior and posterior lips, a wedge-shaped portion is removed from both. In the supra-vaginal, the incisions are made through the vaginal mucous membrane in either fornix. The bladder and Douglas's pouch are avoided. The cervix is cleared of its cellular tissue, and the amputation is completed by the final stitching of the an-

terior and posterior vaginal walls, which are united to those of the uterus.

Mr. Reeves,* of the London Hospital, urges the importance of early diagnosis as bearing on the question of supra-vaginal amputation of the cervix or vaginal hysterectomy. The results of Schroeder, who devised the operation, are not very encouraging. There were 4 deaths in 37 cases, and in 13 out of 19 the disease returned on the average in $4\frac{1}{2}$ months. If the all-round mortality of both vaginal hysterectomy and supra-vaginal amputation of the cervix be 10 per cent., then it would appear preferable to recommend the latter more radical step, at least in those cases in which there is a prospect of recurrence of the disease. In drawing attention to some of the accidents of Schroeder's operation,† Mr. Reeves gives so clearly its important details, that I reproduce the description in his words:

'The vagina should be thoroughly cleansed at the time of operation, and for two or three days previously. The cervix should be well drawn down and backwards with the vulsellum forceps, and its mucous membrane divided in front, well above the disease and clear of the bladder. The bladder is then carefully separated from it by the handle of the scalpel, a sound being kept in the bladder, so as to recognise and keep clear of this organ. If the bladder be well separated to just above the level of the internal os, in front and somewhat to the sides, it and the ureters will retract up out of harm's way. The cervix must now be carried forwards, and the mucous membrane on the posterior wall divided. This incision may join the anterior one, but the lateral parts of the cut must only pass through mucous membrane. In reflecting the mucous membrane from the posterior surface, care must be taken not to open the peritoneal pouch of Douglas, though if the posterior part of the cervix must be divided high up, to be well clear of the disease, it may be well to open the pouch and remove that portion of it on the posterior part of the cervix. Now, the cervix must be freed at its sides from the firm connective-tissue, and as large branches of the uterine artery and the main trunk itself with accompanying veins lie here, it is best to tie before cutting. An aneurism-needle, carrying stout carbolized silk, is passed from behind forwards on both sides as high up as the cervix is cleared, and sufficiently close to the uterus to allow of enough tissue for the ligatures to hold on by, and these are firmly tightened; then scissors cutting between the uterus and ligatures will free the cervix all round. These lateral ligatures not only check bleeding when dividing the lateral connections of the cervix, but also much diminish the flow when the uterus is subsequently cut into. The operation is completed with the knife, dividing the anterior uterine wall as high up as necessary until the cervical canal is opened; then a firm and sufficiently deeply placed median suture is passed through the anterior vaginal wall and uterine tissue above the incision to pre-

* See pages 369, 377.

† 'Ueber die theilweise und vollständige Ausschneidung der carcinomatösen Gebärmutter,' Article Ztsch. f. Geburtsh. u. Gyn., vi. 2.

vent retraction during division of the posterior wall. This is now cut through at the desired spot well above the disease, and the stump of the posterior lip sutured to the mucous membrane of the posterior



FIG. 182.—Reeves' Hysterectomy Forceps.

vaginal wall. The wounds in the lateral fornices should be closed by deep sutures, which help to control hæmorrhage. Any vessels giving trouble must be separately secured. The after-treatment consists in

thorough cleanliness—syringing two or three times a day after the first twenty-four hours with either warm weak carbolic, Condy's, or mercurial solutions (1 in 2,000)—and easing pain for the first day or two by opiates. The urine should be drawn off every five or six hours, and the bowels kept confined for three or four days, and then relieved by a saline purge or enemata. The diet should be nourishing and liquid until all fear of complications has passed off, when fish, fowl, and a little stimulant may be given. The after-complications are hæmorrhage, cellulitis, peritonitis, and uterine lymphangitis, which must be met early with appropriate means.*

The full details of Recamier's vaginal operation for removal of the entire uterus I do not enter into in this work. These have to be most carefully studied, and the operation performed a few times on the cadaver by anyone undertaking it for the first time. This may be readily inferred when we reflect on the steps of the operation :

1. Separation of the cervix from the bladder, as in the supra-vaginal operation, the ureters and peritoneum being avoided.

2. Opening of the pouch of Douglas through the posterior vaginal vault, and detachment with the finger of the peritoneum at either side with the fingers.

3. The opening of the peritoneum anteriorly, which is effected either by introducing the finger through the posterior wall into the utero-vesical pouch, and cutting on these through the anterior wound, or a blunt expanding perforator (Reeves) may be used to make the opening and admit the fingers, so that the peritoneum may be torn to the desired extent.

4. Retroflexion of the uterus, and forcing of the fundus through the posterior wound. If the uterus is large, a forceps is used to bring the uterus to the vulva.

5. Ligation of the broad ligaments, and possibly removal of the ovaries and Fallopian tubes. With reference to this part of the operation, Mr. Reeves urges the advantage of using his hysterectomy compression forceps (clamp forceps) to secure the broad ligaments at either side of the uterus before their division. These forceps are permitted to remain on to the morning of the third day, and partly act as drains after the operation. In their application care has to be taken to avoid intestine. Their application, Mr. Reeves contends, lessens the danger of shock and hæmorrhage, and considerably shortens the operation.*

6. Careful antiseptic dressing of the vagina and drainage of Douglas's sac.

In some cases, and early in this disease, by Simon's scoop (Fig. 179) and the subsequent application of the cautery and caustics, the disease may be most successfully removed.

The spoon must be applied freely, according to the extent of the disease. In all cases where the bladder, rectum, or

* Richelot was the original operator by the clamp method. Of 183 cases of vaginal hysterectomy reported during 1888, 22 died after operation ; recurrence was noted in 23 ; permanent cure was claimed in 13. (See p. 377.)

vagina are involved, it is better not to interfere. If the cancerous infiltration has encroached on the wall of the bladder in front, or the peritoneum posteriorly, in using the spoon, care must be taken to avoid opening into the peritoneum, bladder, or rectum. After the use of the spoon, Paquelin's cautery, or the tampon of chloride of zinc, or the alcoholic solution of bromine (Routh and Schroeder, 1 pt. to 5) may be used. If the latter caustic is selected, some cotton-wool saturated with the solution is pressed against the surface of the wound, and the vagina is subsequently well plugged with a tampon either soaked in a solution of, or covered with carbonate of soda. The bromine tampon may be left in for twenty-four hours. The application may be renewed in about ten days if necessary.

Extirpation of the Entire Uterus through the Abdominal Wall.—The operation associated with the name of Professor Freund, of Breslau, is one which does not come within the province of the ordinary practitioner. Even in the hands of the ablest operators the results have not been sufficiently satisfactory to warrant any definite conclusions. Full particulars of the steps of the operation will be found in all the larger works on Gynecology. From the statistics which have been published of the Porro-Freund operation in cases where malignant diseases of the womb complicated pregnancy, it would appear that this operation offers the patient the best chance. This question, however, is one more fitly discussed in a work on Obstetrics.

Palliative and General Treatment.—Of the various caustics which have been recommended, and of those I have enumerated, the fuming nitric acid is the one which I prefer. Its mode of application has been previously noticed, as has also that of potassa fusa. Chromic acid (3i.—3i.) for relieving pain, arresting hæmorrhage, and checking the ulcerative process, I have always found of great service. The use of any of these escharotics must be combined with

that of antiseptic and disinfectant applications, in order to keep the vagina free of the tissue débris, and prevent the horrible odour which is frequently present. For this latter Professor Siredy recommends a treatment which I can speak of with approval. The vagina is washed out with a solution of perchloride of mercury (1 in 3,000), after which a plug of absorbent cotton-wool soaked in a chloral solution (4 per cent.) and dusted with iodoform is applied to the cervix. This is renewed after two days, and re-applied as often as it is deemed necessary. Condyl's fluid and thymol lotion are admirable deodorants, especially the latter.

Sedatives.—Pain may be relieved both by local suppositories and pessaries and the internal administration of *sedatives*. Cocaine, in my hands, both locally applied and used subcutaneously, has failed to relieve pain. Morphia, injected subcutaneously, is the best means I know of for relieving the pain of uterine cancer. Its use should be postponed for as long a period as possible. It is in the last stage of the affection that it is so much needed. If it be administered in the early stages, it may lose its effect, and fail to give the looked-for relief when most needed. It is a good plan to alternate its administration with some other sedative, or a different preparation of opium, given either by mouth or rectum: chloral and the bromides, or cannabis indica, lupuline, hyoscyamus, monobromate of camphor, or conium. It is better also to give the full dose at a stated hour in the day, generally approaching night, and when the parts have been dressed and the patient has had any other local treatment completed, as, for example, an enema or vaginal injection.

Internal Constitutional Remedies.—The more carefully we consider all the vaunted cures of cancer, which from time to time have been practised either by fanatics or knaves,

the more we must see that the only rational treatment for cancer is comprised in the one word—removal. Within the last few years, Mr. Clay, of Birmingham, has placed before the profession some apparently startling cures by means of the Chian turpentine. Having anxiously tried this medicine with several cases, both in the form of pills and in emulsion, I may record my experience of its effects. In several instances it certainly appears at first to arrest the disease, to lessen the pain, and to check hæmorrhage. In none was the effect permanent. In other cases it decidedly checked the hæmorrhage, but did not arrest the progress of the disease. In some it had apparently no effect whatever. When I now administer it, I do so believing in its value as a hæmostatic rather than as a specific for cancer. The combination of arsenic and quinine I believe to be a valuable one in malignant disease of the womb.

Hæmorrhage may be controlled by styptic tampons applied to the part. These must not be left in longer than twelve hours. The use of warm-water injection, 112° to 120°, should be tried. Internally, astringents may be given in combination with ergot. The *strength* of the patient must be maintained by a nourishing but not over-generous diet; milk, when it can be taken, and animal broths. If meat, poultry, or game cannot be digested, the different preparations of Messrs. Brand can be given.* Wine is generally necessary; the kind and quantity will depend on the circumstances of the case. Change of air, a well-ventilated sleeping apartment, cheerful companionship—in short, everything that can contribute to make the life of the patient as fairly comfortable as the terrible nature of the malady will admit, should be advised.

* Valentin's meat-juice, Busch's Bovinine, and the preparation of Messrs. Savory and Moore are admirable means of administering nourishment.

CARCINOMA OF THE BODY OF THE UTERUS.

There are several reasons for studying cancer of the body of the uterus apart from that of the cervix. We may epitomize these as follows :

1. It is of comparatively rare occurrence.
2. It is a disease of more advanced life, occurring generally during or after the menopause.
3. It is found more frequently in nulliparous women.
4. Histologically it is more allied to sarcoma or adenoma.
5. The symptoms are more obscure than in malignant disease of the cervix.
6. In this disease the body of the uterus is the part affected, the cervix being comparatively free : the body may be enlarged, or hollowed out and filled with the cancerous mass ; or the infiltration may occur principally into the parenchyma.

Pathology.—The disease may commence either in the epithelium of the uterine glands or in the parenchyma. There may result a general thickening of the mucous membrane with disintegration and discharge ; or scattered nodular deposits or a diffused infiltration may be found. Perforation of the uterus may follow, with adhesion, or perforation may take place into any of the adjoining organs.

Diagnosis.—If any patient over forty years of age presents herself, complaining of pain, intermittent hæmorrhage, fœtid discharge of a watery nature, at times coloured, especially if these symptoms make their appearance after the menopause and where menstruation has ceased for some time, cancer of the body of the womb may be suspected. If on digital examination the cervix is found healthy, the fundus enlarged, and with the uterine probe some foul-smelling and discoloured discharge can be wiped from the

cervix, our suspicions should be increased. The safe rule in practice will be to dilate the cervix and examine the cavity with the finger, removing a portion of the uterine tissue for microscopical section. This dilatation and careful attention to the history of the case will enable us to decide as between cancer and a *sloughing intra-uterine fibroid* or *polypus*. The chance of any mistake being made in regard to the *products of pregnancy*, if these symptoms should arise



FIG. 183.—Carcinoma of the Body of Uterus (after Sir J. Simpson).

in the childbearing period, should not be lost sight of. If we explore the cavity of the uterus, and find this enlarged, and a soft mass protruding into it, which bleeds readily and imparts foul odour to the finger, we may feel pretty certain of the disease being cancer. If, in addition, the uterus is fixed by adhesion, and there is accompanying cachexia, we need have little doubt. The microscope will dissipate any that remains.

Treatment.—There is nothing to add to what has been already said in discussing the treatment of malignant disease of the cervix. The clinical fact of obstinate costiveness and distension of the rectum which occur in this disease should not be forgotten. In a case of cancer of the body of the uterus under my care, in a lady aged fifty-five years, the fatal termination was precipitated by the accumulation of scybulous masses in the rectum. Every means failed to remove these, and I had to dilate the rectum and remove some masses with the hand. One of these was of stony hardness; with difficulty I could cut it through with a knife.

SARCOMA OF THE UTERUS.

Etiology.—Sarcoma differs from carcinoma in—

Its commencement in the connective-tissue;

Its slower course;

Its connection with sterility—twenty-five out of sixty-three cases (Gusserow).

Its discharge is not so offensive and is more watery, containing grayish-white shreds of sarcomatous tissue (Hart).

Pain is not so invariable a symptom. Thomas accounts for the absence of pain in some cases, to which special attention has been drawn by Professor A. R. Simpson, by the portion of the uterus in which the sarcoma occurs. If the sarcomatous growth be parenchymatous the pain is severe; not so, he thinks, if it be diffused in the endometrium.

Sarcoma agrees with carcinoma clinically in—

The tendency to recurrence;

The hæmorrhage which attends it;

The foul discharge after ulceration of the surface ;
The pain ;
The soft and friable nature of the growth in many instances ;
Its fatal termination (in septicæmia, hæmorrhage, peritonitis).

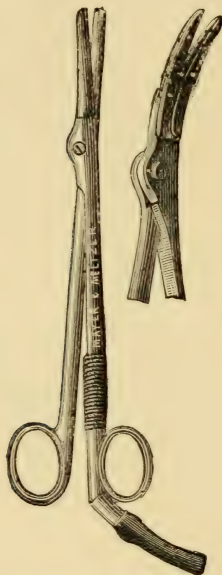


FIG. 184.—Cautery Scissors.

For diagnostic purposes, sarcoma can only be clearly distinguished from carcinoma, fibroid growth, or chronic hyperplasia, by means of the microscope and the detection of the characteristic spindle or round cell.

Treatment.—If it be diffuse parenchymatous sarcoma, ablation of the uterus is the only radical treatment that can be considered.

If the endometrium be the part attacked, all sessile or pedunculated growths have to be removed with the curette, wire *écraseur*, or Paquelin's cautery-scissors. Carbolic acid or other caustic must be applied after the removal of the growth.

Pathological Changes in the Corporeal Endometrium in Carcinoma.—As bearing on early operation, and the choice of vaginal hysterectomy and removal of the entire uterus, or partial removal by high amputation, the researches of Abel are of importance. He shows that the corporeal endometrium is much more frequently affected in cervical carcinoma than was believed hitherto, the change being of the nature of round, or spindle-celled sarcoma. This fact would operate in favour of complete extirpation.

Vulliet's Treatment.—This consists principally of the application of the thermo-cautery to the ulcerated cervix after free scraping of the ulcerations. If the interior of the uterus is affected, the cervix is fully dilated, a saturated solution of chloride of zinc is applied, and, after cauterization, the cavity is packed with iodoform gauze or cotton-wool.

Necrosis of the Uterus.—Browne and Mundé have recorded cases in which, after the uterus was curetted and tamponed by the former surgeon with zinc chloride, and by the latter with perchloride of iron, the entire uterus came away on the tenth day in both instances.

Electrolysis in Carcinoma.—Allusion to this subject will be found in the Chapter devoted to Electro-Therapeutics.

The Question of Operation.—The all-important question as to the nature of the operation to be advised in carcinoma of the uterus, appears to be now nearer solution than when the last edition of this work appeared (1888). The able editors of the section on diseases of the uterus—in the 'Annual of the Universal Medical Sciences,' 1889—Drs. Mundé and Wells, put the matter concisely when they state, 'The accepted indications for hysterectomy for cancer are clearly defined. The operation should be done in cases where the disease is recognised before it has extended beyond the uterus—i.e., where there is no infiltration of the parametric tissues, no glandular enlargements—but is not justifiable as a palliative measure; inoperative cases are best treated by curetting and caustics.' In this expression of opinion I cordially concur. Perhaps there is no more vital question in the entire field of gynecological surgery than this one—What operation should be advised a woman who suffers from carcinoma in the early stages of the disease? It seems to me that the far more favourable statistics of late operations in the hands of such authorities as Schroeder, Tritsch, Martin, Verneuil, Baker, Reamy, Schanta, clearly indicate that an operation, the mortality of which can be reduced to less than ten per cent., and the permanent results of which are in a large proportion of cases satisfactory, should be advised for a disease in which the fatal issue under any other treatment is generally a matter of time. I have introduced two drawings, after

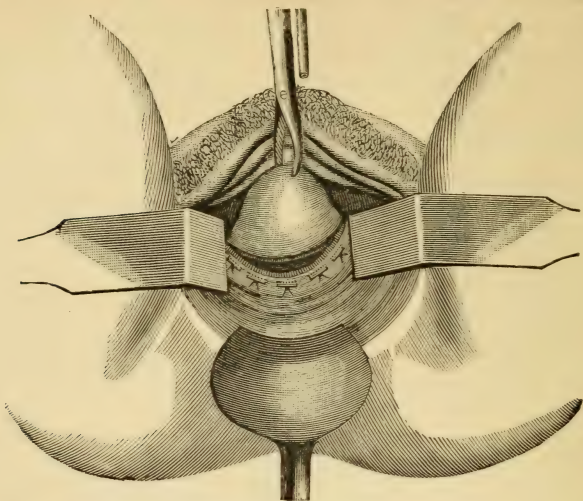


FIG. 185.—Posterior cul-de-sac opened ; suture applied to peritoneum.

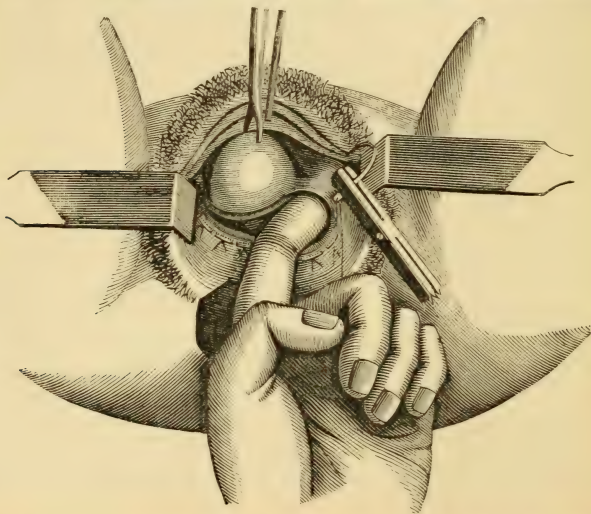


FIG. 186.—Suturing the lateral structures in floor of pelvis after the opening of Douglas's pouch.—Martin, 'Annals of Gynecology.'

Martin ('Annals of Gynecology'), which will show the student, by his method of operating—

(Fig. 185.) The opening into Douglas's sac after the vaginal wall has been sutured to the peritoneum.

(Fig. 186.) The suturing of the strictures in the floor of the pelvis. Martin uses ligatures for the control of hæmorrhage from the broad ligaments. The steps of this operation are :

1. Ligaturing the base of each broad ligament, thus constricting the uterine arteries.
2. Opening of the posterior cul-de-sac of vagina, and the suturing of the peritoneum to the vaginal wall.
3. Opening the anterior cul-de-sac, and suturing of the peritoneum to the vaginal wall anteriorly, by carrying the finger forwards at either side of the uterus, through the opening made in the posterior cul-de-sac, and then opening the peritoneum at either side and suturing.
4. Ligaturing the broad ligaments and dividing the strictures at either side of the uterus, between the ligatures and the uterine wall.

CHAPTER XXI.

GYNECOLOGICAL ELECTRO-THERAPEUTICS.

I BELIEVE that it was in the last edition of this work that reference was made for the first time in any English text-book to the details of Dr. Apostoli's methods of treating uterine and peri-uterine affections by galvanism and the galvanic cautery. During the comparatively short period that has elapsed since that edition was passing through the press a large number of workers, amongst whom can be reckoned some of the best known and ablest of Continental, English, and American gynecologists, have given the method of treatment an impartial trial, and having seen the results of Dr. Apostoli's clinic in Paris, have reported favourably of this new and essentially conservative therapeutical step. It is only right to repeat what we have elsewhere noticed, that Dr. Cutter, of America, had long since practised and urged the value of the electrical treatment in various uterine affections. Dr. Apostoli himself acknowledges his indebtedness to Dr. A. Tripier, who 'devoted thirty years in a glorious scientific struggle to seek a panacea for metritis in the induced current of quantity.' And as far back as 1873 Routh and Althaus used continuous currents of high intensity in the treatment of uterine fibroids. But to Dr. Apostoli belongs the credit, as he himself truthfully puts it, of supplanting the old way of operating by a method more 'precise,' 'energetic,' 'tolerable,' 'better localized,' 'more thoroughly under control,' and 'scientifically exact.'

How his improved plan of operating, commenced by him in 1882, fulfils these conditions it is our object here to consider. Obviously in a manual such as this it is impossible to do more than summarize the principal details of this treatment; and for this reason, if for no other, I shall confine myself to a simple description of Dr. Apostoli's electrotherapeutic operative measures, and the particular precautions on the necessity for which he lays such emphasis. To discuss fully all the objections which have been raised, and the attacks which have been directed against Dr. Apostoli's treatment, would be impossible, and those who are interested in the subject will find in the periodical literature of the past two years ample material to consult on those matters. I have had in one case of my own clear evidence that even when surrounded with every precaution conceivable, this method of treatment is not devoid of danger, and that death may occur, whether due directly to the operative procedure itself, or indirectly to it and other unfavourable circumstances in the patient. In the case I refer to the patient was a woman of a nervous temperament, manifested at times by attacks of a hystero-cataleptic nature. These nervous attacks were precipitated by violent uterine hæmorrhages, and were attended with the most severe flatulent eructations I have ever heard. Though this unpropitious event occurred in my own practice, I refrain, with my as yet limited experience, from any semblance of a dogmatic expression of opinion in the face of the unimpeachable testimony, not alone of Dr. Apostoli himself, but of many most distinguished and reliable operators both in Europe and America. Great success with any operative procedure, even in hands the most endowed by nature with manipulative dexterity, and guided by intellect the clearest, can only be attained with an experience in which some failures or blunders have taught the lessons which ensured the ultimate

approach to perfection. It is not alone to operative surgery by the knife that the eloquent peroration of Dr. Apostoli, in his introduction to Dr. Bigelow's work, applies, when he says :

'Within the last ten years gynecology has undergone a transformation, thanks to the germ theory and antiseptic teachings. Surgery has made grand and legitimate advances here, which still abide, by the temerity born of success of certain operators ; but this very boldness has made cheap that which we should respect. The statistics of such or such a surgeon are to-day so favourable that one may hope that surgical intervention should *always* be one of *choice*. I deny this fallacious and erring sophism for the following reason : Certain statistics are brilliant, but go back three or four years and one will find the same surgeons with a success much less noteworthy, and *that their dexterity has been reached at the cost of many victims.*'*

The italics are the author's.

And no one who carefully reads Dr. Apostoli's review of his own work, of his acknowledgment of 'blunders' made in carrying out the treatment, of the cautions he gives as to exactitude of dose, antiseptic precautions, and all the other details of operations, the performance of which demands that the operator be 'both gynecologist and electrician,' will refuse to admit that the risks to the patient are in inverse ratio to the experience of the operator. Therefore does it behove every beginner to err on the side of excess of caution, to surround his patient with every possible safeguard both before, during, and after operation, in careful antisepsis, in regulating the strength, character, and extent of the electric application, as well as the length of

* In referring to his own earlier operations, Mr. Tait candidly says : 'Adverse critics have been delighted to rake up my early cases, in which, with less than a score of cases, the mortality was nearly twenty-five per cent. ; but I need not say that, as I originated the proceeding, I have had to bear the blunders inseparable from ignorance,' etc.

time it is applied, and in estimating the tolerance of the patient and her special susceptibilities to electrical influences. But something else of greater importance still is demanded of the operator, and without securing which all these safeguards may be valueless, viz., an accurate diagnosis. If it be true that the most experienced of us are liable to error, and that our greatest gynecologists have placed on record errors both avoidable and unavoidable, that Dr. Apostoli himself tells of 'not recognising a suppurating ovarian cyst which ended in death from peritonitis,' how careful must the young surgeon be to make assurance doubly sure before he resorts to electrolysis, and decides on the extent to which he will avail himself of it, or the exact mode in which he will apply it. In a short summary, such as this is, of uterine electro-therapeutics, I prefer to limit it within the lines marked out by the work of Dr. Apostoli himself, the apparatus he approves of, the explicit directions that he gives, the cautions he enforces, the indications for the different methods of treatment that he has laid down. I hope so far to compass this as to enable any intelligent practitioner from the perusal of these directions and descriptions, to put in practice either mode of treatment, whether by faradization or galvanization. Obviously a previous, at least, elementary knowledge of the laws of electrical forces must be assumed on the part of the reader of such a manual as this is, and to acquire such some acquaintance with the modes of action, physical, chemical, and therapeutical, of the different kinds of electricity on the human body is essential before resorting to this method of treatment.*

* For this purpose I know no better work for the practitioner than that of Dr. Bartholow on Medical Electricity. (Young Pentland, Edinburgh, and West Smithfield, London.) Dr. Bigelow's work (Lewis, Gower Street) on Gynecological Electro-Therapeutics contains a complete summary of the details of Dr. Apostoli's treatment and experience, with an introduction written by Dr. Apostoli himself.

In order to understand the details of these electro-therapeutic measures we have to consider :

1. The preliminary measures and precautions.
2. The appliances necessary for
 - (a) The faradic treatment ;
 - (b) The galvano-caustic treatment.
3. The gynecological indications for these therapeutic methods.
4. The details of
 - (a) The faradic method ;
 - (b) The galvano-caustic method.

It must be well understood that before beginning any electrical treatment a clear diagnosis is essential. And even more than an accurate knowledge of the local conditions we desire to treat is necessary. The temperament of the woman, the state of her general health, apart from the uterine and ovarian pathological state we are anxious to influence, have to be taken into account, and might altogether contra-indicate its employment. To determine the presence of such collateral conditions it is well to have the patient a short time under observation before commencing treatment. A careful exploration of the pelvic viscera should be made, beginning with the *condition, size and dimensions, thickness of the parietes, and position of the uterus*. The vaginal cul-de-sacs should be carefully explored, and the state of the ovaries, so far as possible, ascertained. The history and evidences of recent or past attacks of parametritis, or pelvic peritoneal inflammation, should be inquired into. Any *ascitic accompaniment* of uterine disease must be noted, and its cause inquired into. The *urine* should be examined. The so-called *neurotic and the hysterical temperaments* must be taken account of. They seriously influence the tolerance on the part of the patient of either form of

electrical treatment. Their presence and this intolerance will influence the practitioner in the dosage and intensity of the current he employs. There is the question *of the place at which the treatment is carried out*. Whatever may be said of the faradic treatment which it is quite possible to pursue in the study of the practitioner, and some milder applications of the galvanic current, I maintain that all the severer cauterizing applications should be done with the patient in bed. This is the safe rule. A patient is liable to accidents, shocks, falls, the influence of cold and draught, passing to and from the physician's residence, that may cause trouble which she is not liable to in bed. Besides, it is well to let the patient rest for a time, even after any form of electrical treatment, and this is not so easily done in the practitioner's house.

THE MONTHLY PERIODS.—It is wisest to desist from operations approaching the time of a period, and not to commence the treatment for a week after the menstrual flow has ceased. This rule applies more particularly to cases in which galvanic puncture is practised for pelvic exudations, and in cases of metritis where the galvanic cauterization is practised.

TO SECURE THOROUGH ASEPSIS.—In every instance in which an electrode is introduced into the uterus, or into the vaginal cavity, whether for purposes of faradization or galvanization, it should be thoroughly cleansed and dipped in antiseptic solution. The vagina should be washed out with a perchloride of mercury solution (1 in 5,000) both before and after the sitting. If specula are used, they should be carefully disinfected; so should the hands of the operator. If a patient has to go out after the application of the faradic or galvanic current, it is safer to place an antiseptic tampon in the vagina with a string attached, which can be removed subsequently by the patient.

CERTAIN MEASUREMENTS in cases of fibroid tumours should, Dr. Apostoli advises, be taken and registered before beginning any electrical treatment, viz. :

- (a) The circumference of the abdomen at two or three points.
- (b) The exact thickness of the layers of skin and fat above and below to the right and left of the umbilicus, taken by means of a graduated compass.
- (c) The weight of the patient.

APPLIANCES REQUIRED FOR FARADIC TREATMENT.

Battery.—A battery is required which shall yield both low and high tension currents. Also, the current must be capable of increase without any sudden jerks, so as to

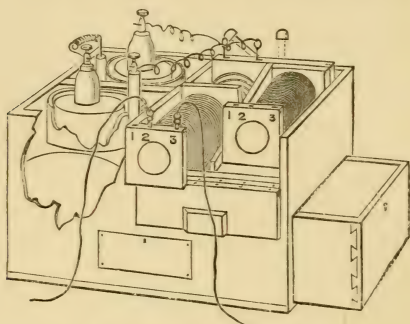


FIG. 187.—Faradic Current Battery.

avoid the infliction of shocks. For this purpose the sledge-coil is the best. High-tension bobbins of very thin wire slide over the low-tension bobbins of thick wire.

Such a battery as that shown at Fig. 187 (Coxeter) will be found to answer the purpose admirably. There are two bobbins of different thickness of wire, and thus a current of

medium or high tension can be obtained. The terminals needed are :

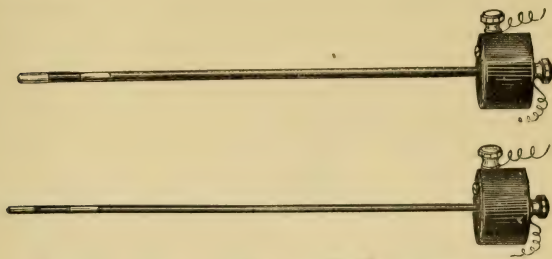


FIG. 188.—Bipolar Intra-uterine Exciter, of two sizes.



FIG. 189.—Concentric Bipolar.



FIG. 190.—Bipolar Vaginal.

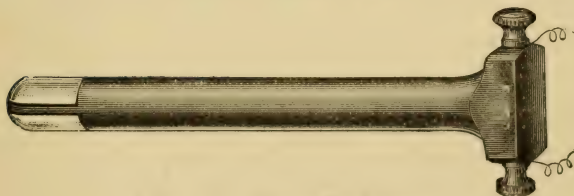


FIG. 191.—Bipolar Vaginismus.

FARADIC ELECTRODES.

Bipolar intra-uterine exciters (two sizes).

A concentric bipolar electrode, for application to the uterus.

A bipolar vaginal electrode. The insulating substance is placed horizontally between the metal terminals, these latter being at some distance from each other.

A bipolar (vaginismus) vaginal electrode. The insulating substance dividing the electrode into two is very thin, and placed vertically, and the poles are thus carried to the end of the electrode, so as that it can be applied to any painful, sensitive, or neuralgic spot. All these terminals are insulated so as to avoid any accidental shock to the administrator.

A monopolar vaginal electrode can be had, and a small plate or electrode for applying over the abdominal or suprapubic region on the skin, or elsewhere, in any case in which we desire to complete the current through the integument. The entire cost of the apparatus is :

	£	s.	d
Battery ... ..	...	6	10 0
Bipolar intra-uterine exciter (No. 1)	...	0	12 6
Bipolar intra-uterine exciter (No. 2)	...	0	12 6
Concentric bipolar exciter ... ..	...	0	15 0
Bipolar vaginal exciter ... ..	...	0	11 0
Bipolar vaginismus ... ..	...	0	11 0
Monopolar exciter ... ..	...	0	8 6
Abdominal electrode ... ..	...	0	2 6
Total ...	£10	8	0*

APPLIANCES REQUIRED FOR GALVANIC TREATMENT AND GALVANIC CAUTERY.

The fixed battery must be composed of large cells placed on shelves in a dry room. They last a long time, are easily renewed, and serve other purposes than that of electrolysis, as, for instance, electric illumination. The current can be carried a distance by means of suitable wires and connected with a convenient element board. Such batteries answer well for hospitals. [The total cost of fixing these batteries and cables, etc., is about twenty-five pounds.]

* Messrs. J. Coxeter and Son.

1. Sulphate of mercury battery, twenty-four cells, with double collector, by means of which each cell can be tested separately. This battery remains in action so long as the fluid is kept in contact with the elements. The cells, when out of use, are therefore lowered by means of the cross-handle shown in the engraving.

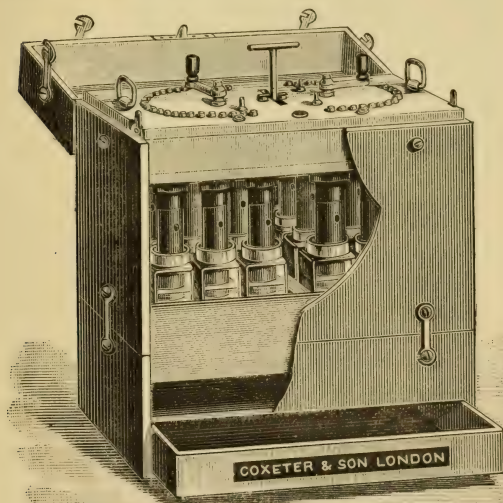


FIG. 192.—Apostoli's Sulphate of Mercury Battery.

The modified Lécanché battery, low tension, mild current, is shown at page 146 ; with it is a collector, interrupter, current reverser, and galvanometer.

Accessories and Electrodes.

Gaiffe's galvanometer. The figure shows the galvanometer in its copper cage, which is fixed on the pedestal by a ring. The multiplying frame, graduated circle, needle, and needle-balance are shown. When not in use

the needle-balance should be brought into action, so as to prevent the needle moving on its pivot.

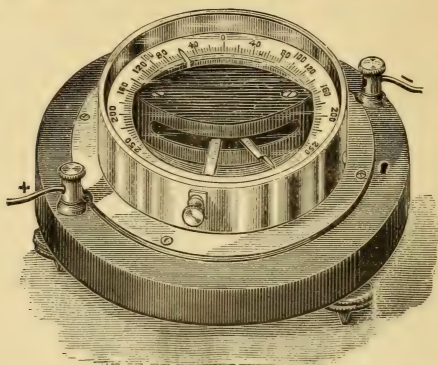


FIG. 193.—Galvanometer graduated to 250 milliampères.

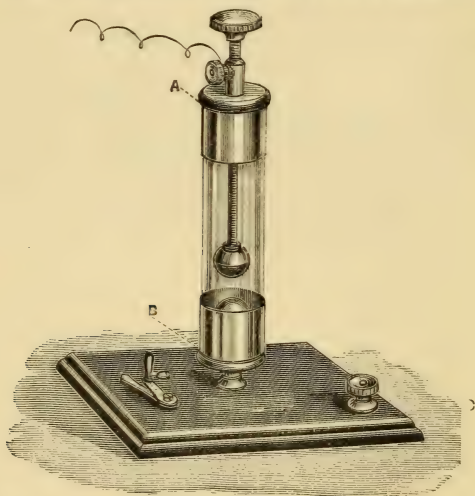


FIG. 194.—Water Rheostat. A, B, screws for opening rheostat ;
C, D, for attachment of wires.

The water rheostat is introduced to equalize the current and regulate it so as to prevent shock. The resistance is increased or decreased by depressing or elevating the metal piston. The rheostat and galvano-

meter are introduced between one pole of the battery and the clay electrode. The rheostat should be regulated daily. It is better to refill it each day, and the surgeon should test the strength of the current carefully. A little salt should be added with the water in the rheostat.

Other Accessories.



FIG. 195.—Rigid Platinum Sound.

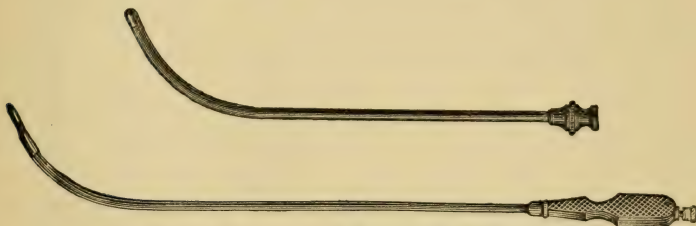


FIG. 196.—Platinum-ended Sounds with Flexible Stems.

Gas-Carbon Sounds of Apostoli (see p. 392).

The object of these sounds is to enable the operator to gradually increase the size of the gas-carbon terminals, so as to arrive at a perfect co-aptation of the electrode to the uterine cavity. The electrode consists of :

- (M) A handle for attachment of rheophore.
- (E) Caoutchouc covering of the metallic stem, which is marked by circular grooves at regular distances of $2\frac{1}{2}$ centimètres.
- (C) Gas-carbon terminal $2\frac{1}{2}$ centimètres long. This being attached by a screw to the end of the metallic stem, may be replaced by others of different diameters. These progressively increasing diameters are shown by the circles.

The Abdominal Electrode of Clay, as used by Dr. Apostoli.

Dr. Routh has devised a flat tray, into the upper part of which a plate-electrode is fixed. The clay is placed in this

tray, and if it is kept in a shallow basin of salt water the electrode is always ready for use, and the mess caused by the clay is avoided.

Dr. Parsons has devised copper and lead plates with an insulator which surrounds the edges; about six layers of linen, damped with water, are placed between the plates and the skin. The patient can hold the electrode in position herself.

The cost of the necessary appliances for carrying out the galvanic treatment will be (in or about):

	£	s.	d.
Apostoli's battery ...	10	10	0
Galvanometer ...	2	10	0
Rheostat ...	1	15	0
Rigid platinum sound ...	2	15	0
Platinum-ended flexible sound	1	5	0
Carbon sounds (8s. 6d. each)	0	8	6
Clay electrode ...	0	5	6
Total ...	£19	9	0

(The Lécianché battery, before figured and referred to, costs £8 17s.)

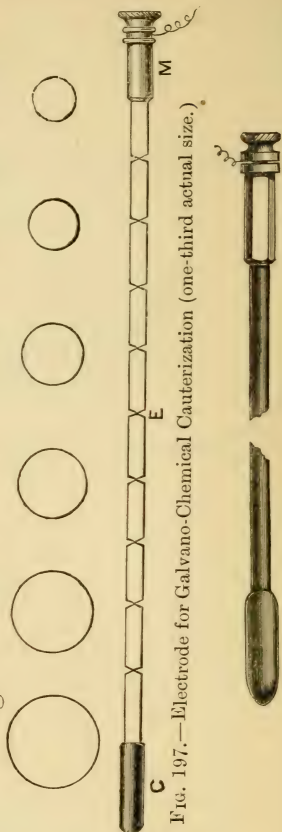


Fig. 197a.—Gas-carbon Electrode.

INDICATIONS FOR ELECTRO-THERAPEUTIC METHODS.

1. FARADIZATION.

Low-tension current (primary helix and thick wire bobbin).

Arrested involution and secondary post-partum hæmorrhage.

Sub-involution.

* Messrs. Coxeter and Son.

1. Indications for FARADIZATION (*continued*).

The acute stages of perimetritis and ovaritis.

Chronic metritis.

Menorrhagia.

Amenorrhœa.

Dysmenorrhœa.

High-tension current (thin and long wire bobbin).

Vaginismus.

Oöphoralgia.

Salpingo-ovaritis.

Various manifestations of hysteria.

Perimetritis (Apostoli).

Coccygodynia.

2. GALVANIZATION.

(I take for my purpose the table of 5,201 operations of Dr. Apostoli, performed at his clinic or in private practice.)

(a) *Galvano-chemical cauterization* in—

Fibroid of the uterus—polypi.

Hypertrophy of the uterus.

Sub-involution.

Acute and chronic metritis—endometritis.

Ulceration of the neck of the uterus.

Peri-uterine inflammation (parametritis, perimetritis, phlegmon).

Oöphoralgia.

Ovaritis and periovaritis.

Salpingitis.

Ovarian and tubular cysts at an early stage.

Atresia.

Hæmatocele.

(b) *Galvano-chemical puncture in—*

Certain cases of fibroid tumour in which the sound cannot be passed, and as an adjunct to intra-uterine galvano-cauterization in other cases.

The sub-acute stages of cellulitis and perimetritis with effusion.

The same affections, if suppuration has occurred.

Salpingitis, with effusion, and pyo-salpinx.

DETAILS OF THE FARADIC METHOD OF APOSTOLI.

The battery shown at page 386 is used. If a current of quantity is required, as in cases of amenorrhœa or hæmorrhage arising from arrested involution, the thick wire bobbin is used. If, on the other hand, the current of tension is indicated, as in the pain of oöphoralgia, dysmenorrhœa, and in salpingo-ovaritis, the thin and long wire bobbin is used.

1. Commence with the simple vaginal application, using a long bipolar electrode.

2. Let the current be *very mild* in the first application. Avoid the infliction of any shock, and be most careful of any sudden jerking motion of the bobbin.

3. Carefully judge by the countenance and expression; by questioning the patient of her tolerance of the current.

4. Apply the 'vaginismus' electrode to the most painful spot in the vaginal roof, and the 'concentric carbon' uterine electrode to the cervix uteri.

5. After a few such sittings (if indicated) apply one of the bipolar intra-uterine sounds, with the same extreme care to avoid the infliction of shock, and only such pain as is easily borne by the patient. }

6. One sitting daily will, as a rule, be sufficient. This should last from five to twenty minutes, its length being regulated by the effect produced.

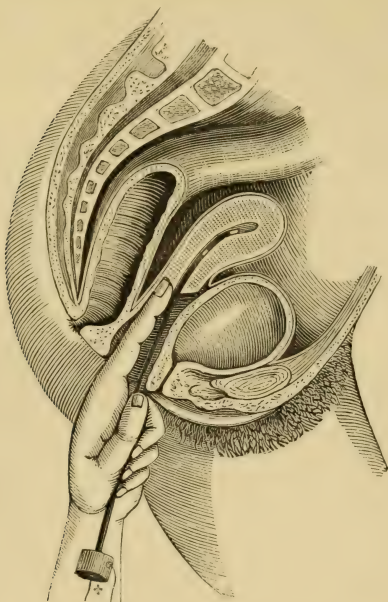


FIG. 198.—Showing the Electrode in the Uterine Cavity (Bigelow).

7. The bipolar sound should not be introduced into the uterus during the progress of any acute inflammatory affection of the uterus, ovary, or Fallopian tube.

DETAILS OF THE GALVANO-CAUSTIC METHOD.

(a) *Galvano-chemical Cauterization*.—I have selected and determined to quote almost in their entirety the directions of Dr. Apostoli in resorting to electrolysis in metritis and

endometritis, as any curtailment would necessitate a dangerous mutilation of them, and I feel that all are of equal importance to the practitioner.

4. PREPARATORY PRECAUTIONS.—Firstly, you must above all things—and this is of the very greatest importance—carry out a good and thorough antiseptis. That is, the operator should carefully wash his hands with an antiseptical solution, either carbolized or sublimated, and he should only operate in a favourable and perfectly aseptic locality.

Secondly, he must then rapidly examine all the couples of the battery, in order to see that they work well, and thus to avoid any interruption during the course of the sitting. It suffices for that to close the circuit on itself, and to make each of the couples enter successively into it, one by one; the deviation of the compass which serves as a galvanoscope will reveal immediately the passage of the current, and consequently the total integrity of the battery which is being used. On the contrary, if there is no deviation you must search for the one at fault, in proceeding from the periphery to the centre, and we shall soon recognise the seat of the interruption, which may depend either upon the breaking of one of the rheophores, or some remediable defect of the collector (such as a loosened screw, or the handle not pressing sufficiently on the brass points which collect the current, or these latter may be too much oxidized to allow the current to pass freely), or perhaps it is one of the wires which join the batteries together that is broken or disconnected, or it may depend upon some infirmity of the battery itself—such as its being used up, wanting water, or the zinc being in a bad condition.

This being done, we must cure on the spot, if possible, the cause of the interruption, and we shall then place the two handles of the collector at zero, to be ready to start—I say handles, in the plural, because I suppose, as is usually the case, that you have a battery provided with a double collector, which permits of your taking the elements one by one at the beginning, at the middle, or at the end of the battery. To explain myself. You must be able to take the elements one by one in order to render the operation as bearable as possible, for if you have a battery mounted two by two, or four by four, you can understand how sharp and sudden the transition from one number to another would be, and what consequences might result. There is a first principle which you should always have before your mind, and which ought to be engraved in the thoughts of all gynecologists, and that is that the uterus will bear anything on two conditions, first, that you obtain a good antiseptis, and second, that you do nothing roughly to it.

Thus it will support a current which is fearfully intense, provided that you inflict upon it only a progressively increasing dose without shock or jerk.

The only way not to violate this rule is to possess a collector which will permit of your giving it the current cell by cell.

You may, at all events, even with a collector of two by two or four by four, avoid the difficulty, and arrive at the same insensibility of the

operation by employing a medical rheostat which you introduce into the circuit. This additional resistance has for its object the offering of a first barrier, varying in amount to the passage of the current, and, consequently, to render more tolerable and less sudden the transitions, which would be too great without it.

Thus, with the collector divided one by one, the patient easily supports the difference between one cell and the next; there is always a slight shock, it is true, but it is reduced to a minimum; if, on the contrary, the collector is divided two by two, three by three, or even four by four, the shock becomes greater with this transition, and the patient finds herself in the position of one who ascends or descends easily a flight of stairs, step by step, but who, when she goes up two or three steps at a time, finds it much more difficult.

The introduction of the rheostat smoothes these transitions, and takes the place, so to speak, of an inclined plane which renders the fall less sudden and easier; instead of having a vertical and violent shock, we get down by a longer descent which diminishes the sudden force of the fall.

The only inconvenience of the rheostat is that it requires a greater number of cells, for if, before the introduction of this additional resistance, twenty elements, for instance, were sufficient, with it you would require an additional number, varying in proportion to the number of unities of resistance (called ohms) interposed—as a rule, 200 to 500 ohms of resistance are quite enough to deaden the shock. Two railway waggons can only touch after overcoming the resistance of the buffers which soften the force of the collision; in the same way, the current which has to go through 500 ohms before arriving at the skin will have its energy diminished, and to make up for this deficiency you must add a greater number of cells.

The double collector has the further advantage of permitting us to employ any fraction of the battery to the exclusion of the rest.

If the first cells were used up, for instance, or if there were some interruption to the current which we could not correct at the moment, we might then utilize the middle or the end; and to do this, instead of placing the two handles at zero, we would place them at the figure higher up than the last couple which we do not wish to or cannot use.

(These observations apply to Gaiffe's battery.)

3. The galvanometer will also be an object of special attention. You must make sure that the needle oscillates in every direction without striking, and that it is perfectly suspended. There are two ways of fixing the galvanometer—either on the cabinet which contains the battery, or it is independent, and introduced into any point on the circuit at the will of the operator.

4. The battery, collector, and galvanometer having been tested, we place them near the operating bed or sofa, so that, without moving, you can on one side stretch out the hand and easily move the handles of the collector, and on the other hand be able to see and follow easily during the whole operation the oscillations of the galvanometer. You adjust the needle, or rather you turn the multiplying scale until the zero on the compass corresponds exactly with the needle.

5. You pass the hystrometer through the flame, and then you plunge it, handle and all, into a strong carbolic solution, in order to make sure of its being perfectly aseptic.

You arrange the length of the intra-uterine sound, in drawing it out from the handle, according to the previously-determined or the probable length of the uterus. You then cover the sound with an insulating sheath of celluloid.

6. You attach the rheophores, or, better still, one rheophore first, to the metallic plate which lies upon the clay.

7. See if the clay is in the proper condition for humidity, and especially if it thoroughly moistens the tarlatan.

B. PRELIMINARIES.—1. *The woman.* Before beginning, you must in a brief and paternal manner explain to her what is necessary for the success of the treatment; you will prevent all emotion, especially if the woman is nervous, by assuring her that the operation is harmless and perfectly bearable. It is necessary never to begin, especially the first time, before obtaining her complete acquiescence, in order that she may relax all her muscles, and avoid all movements that might be hurtful or dangerous. You will make her take off her corsets and untie her petticoats, in order that her breathing may be free and easy, and that the belly may be completely exposed.

If you operate in your study she should get upon the table. If you attend her at her own home she should lie across her bed, the feet resting on two chairs, taking good care, however, in both cases, that the buttocks project completely beyond the edge, in order to give perfect freedom to the hand which introduces and holds the intra-uterine sound.

Once placed in position, the woman must remain absolutely immovable, and you must remind her that, no matter what happens, she must not move, but that, on the slightest sign, if she desires, you will stop the operation; she will thus be more satisfied, she will breathe easier, and will aid any manœuvre required for the introduction of the sound.

It would be well, and even useful, to make, before examining her and operating, an antiseptic vaginal injection of sublimate, 1 in 1000 or 2 in 1000: it will exercise a preventive and curative action in cases where we might have reason to fear the carrying of septic products from the vagina into the uterus.

2. *The clay.* You quickly place the clay on the belly, above the pubis, and away from the hairs, after having warned the patient that it is always cold, but that this disagreeable feeling will soon disappear. You must cover it with a dry cloth, such as a folded towel, for instance, on which the woman is to place her two open hands (12) side by side, so that she may exercise a slight pressure on the clay, in order to render it more uniformly and completely applied to the skin.

We never apply the clay to the skin without having first determined that the epidermis is healthy, and there are no pimples or abrasions, nor any wounds of any kind, no matter how small. It is at such points as these, in fact, if you do not take care, that the current, finding the door more open, will enter more easily, and then, in virtue of the law I have laid down, when speaking of the contact of the metallic elec-

trodes, it will be dense at all points where the epidermis is removed, and it will, therefore, accumulate there its peculiar action (of heat and even burning). If you find an erosion, no matter how small, you must close it, either by means of collodion or with paper—in a word, with some non-conducting body—in order to prevent the current from passing through this abrasion to the epidermis.

3. *The sound.* Its introduction into the uterus is the most important stage, and exacts the greatest care and practice.

A great part of the operative success depends on its good execution.

I cannot now enter into all the details which should regulate the use of the hysterometer, referring the reader to special works, and especially to the one which I am preparing for this purpose. I must content myself at present with summing up the manœuvres, by saying, and by repeating, that extreme gentleness should always preside over its execution. Never should the introduction of the sound—for this is merely an introduction of the sound for therapeutical purposes—be made with the slightest possible force. On the slightest resistance, however small, you must stop, go back if necessary, and begin again; the uterine cavity should show its road, so to speak, to the operator, who should allow himself to be led into it.

I reject the employment of the speculum in making a proper hysterometry, and for making sure that it is complete. I will only give one reason which seems to me to be beyond question. If in writing we always hold the pen-handle as near as possible to the point, it is in order to give the writing as much assurance and firmness as possible; it is in order that the hand which holds the pen may be nearer to the paper, or to the resistance over which the pen has to travel. Now compare two specimens of writing, the one which was written while the pen was held near the handle, and the other near the point, and the comparison will be altogether in favour of the latter.

The same thing applies to the introduction and the fixing of the sound; the search which you must make, the resistances which are to be conquered, the road you must follow—all these things will be better executed when the conducting hand is as near as possible to the point of the instrument.

With a speculum the hand is obliged to hold the instrument by the handle-end. Without the speculum the conducting hand doubles itself, so to speak, or better still, we can invoke the aid of the two hands. The left hand, for instance, holds and fixes the handle, at the same time giving it a slight movement forward. The other hand with its index-finger in the vagina and adjacent to the posterior lip, following it, and guiding it when necessary, in all its movements laterally and forward, straightening and correcting its course when it goes wrong.

Now, this vaginal finger, as near as possible to the point of the sound, is really the most useful one in the practice of hysterometry; it is it which makes us for the most part perceive, what it is difficult to do without it, that the sound has arrived at the end of its course, and that it is striking exactly against the bottom of the uterus. Well, I ask, the same as in writing, can we discuss the merits of the two

methods? The reply leaves no doubt, and hystero-metry performed without a speculum is much more sure, more complete, and more harmless.

It will sometimes be necessary to precede the hystero-metry by preliminary intra-uterine antiseptic injection, the same as the vaginal injection, which, apart from the topical action, will have the double advantage of clearing the uterine cavity of the products of secretion, or the mortification coming from previous operations, and thus to permit the current to act more uniformly and more energetically upon the underlying mucous membrane.

4. Once the sound is well introduced into the whole extent of the uterus, you must take care that the vagina is well protected by the isolating covering of celluloid, and for that it ought to touch at one end the neck of the uterus, and at the other project from the vulva. During the operation we should not cease to be careful of this, for if it should become all at once suddenly painful, you will generally find that it is for want of watching the handle, which has slid forward, and which no longer protects the vagina in its entirety.

5. You will then attach the rheophore to the intra-uterine exciter, taking care to do so sufficiently firmly that it may not become detached during the séance, and thus cause a shock, which would result from the interruption of the current. The fixing of the wire should be accomplished by means of a slight twist of the peg (which is at the end of the conducting wire) into the hole which is prepared for it in the handle of the sound. You must not bring too much force to bear upon it, as you might displace the instrument in the uterus, and wound it by pressing on it.

C. THE OPERATION, PROPERLY SPEAKING.—Everything being ready to commence, the operation may be divided into three stages. These are: the initial stage, the middle, and the end.

1st. *The initial stage.*—(a) You must not begin to turn on the current until all pain or sensibility resulting from the passage of the sound shall have totally disappeared. A few seconds of waiting are sometimes necessary for this purpose.

(b) This done, the hand which holds the sound steady will move no more; in order to give it more security it is better to leave the conducting finger in the vagina, where, if we are sufficiently sure of ourselves, we hold the sound by the handle; the dorsal surface of the handle will rest against the internal surface of the corresponding thigh of the patient.

(c) You will now turn your eye towards the compass to see how it answers to the passage of the current, and at the same time you must not lose from your sight the countenance of the patient, which will warn you of all the sensations she feels.

(d) The hand which remains free should be placed on that handle of the collector which corresponds to the positive pole, as the operator desires it; for the characteristic of the positive pole is that it always belongs to the handle which is in motion, or which is at the highest figure, while the handle which remains stationary, or is at zero, or at a figure lower than that of the handle which moves, belongs to the negative pole, according to the method of construction of Gaiffe.

(e) You will then commence slowly, very slowly, to turn on the cells, especially if it is the first operation you have undertaken, or if you are not acquainted with the patient ; at first you will go to twenty or thirty milliamperes. Then proceed to fifty : by this time you will have gained, what it is very important to do, the confidence of the patient, who will soon find out of her own accord that electricity does not cause much pain ; you will then reach 70, 80, or 100 milliamperes, and it is better for the first time not to go beyond this figure.

(f) IT IS THEREFORE IMPORTANT NEVER TO MAKE THE PATIENT SUFFER TOO MUCH, AND NEVER TO INFLICT MORE PAIN THAN IS BEARABLE. THIS IS THE TRUE CRITERION WHICH SHOULD FIX THE LIMIT OF THE DOSE. It will, of course, vary with each patient and each disease, but for me it is impossible to doubt that the success of the operation depends on the execution of this formula. A uterus which has been made to suffer too great pain, is in danger, indeed, of having its pre-existing inflammation increased, especially if there is any inflammation of its periphery ; that is why I strongly recommend only to apply the current at the beginning slowly and progressively in fractional doses, so to speak, and then to wisely interpret the replies of the patients in order to be enlightened as to the intensity which they are capable of supporting.

2nd. *The middle stage.*—(a) Generally a few seconds suffice to apply to the uterus in an ordinary operation the maximum dose desired, but with very nervous or very hysterical women, and especially when we operate for the first time, we must take care to wait one or if necessary two minutes, to arrive at the maximum dose which they can bear.

(b) The point that we can reach will generally be 100 milliamperes at the first sitting ; during the others we may try to raise it to 150 and even 200. We can, if necessary, when a serious case requires it, reach 250. The maximum figure, once obtained—which differs, I repeat, according to the patient—we will keep it at the same level during a period of between five and ten minutes, but on an average of five minutes.

(c) The variations which should take place in the dose and the duration of the operation are justified by this fact, namely, that in the first place all women do not support electricity equally well, and besides they each require a different intensity according to the gravity and previous duration of the disease ; thus it is advisable, in a difficult case of severe hæmorrhage with marked fungous endometritis, to prolong the application to the maximum possible point of toleration, which might be as much as ten minutes ; with other persons, on the contrary, very hysterical and nervous, and easily enervated by the slightest pain, a sitting of three or four minutes will be as much as they can bear.

(d) There is an important precaution which you must take during the sitting, and which concerns the method of holding the sound ; it is necessary to hold all the intra-uterine portion always applied against the uterine wall, and as far as possible to put it successively in contact with each of them, anterior, posterior, and lateral, in order to disseminate and equalize, in this manner, its caustic action, and to render it as efficacious as possible.

(e) One thing it is important to know, and that is to understand the oscillations which take place in the needle during this period, while the number of cells in use remains the same.

In certain patients who have a very resisting skin, we must not be surprised to see the deviation of the needle become greater; which bears witness to the increasing electric intensity or outflow, which increases because the current passes better through the epidermis, which has taken a certain time to become softened and to allow itself to be penetrated. Once having reached the summit of its course, the needle generally becomes stationary, or moves at least but slightly, and thus proves, by its greater or less fixation, that the current once having been well established circulates in an almost continuous and identical manner.

3rd. *The end.*—(a) The same precautions which I have just advised for the application of the current should be always rigorously applied in order to suspend it. *You must stop gradually couple by couple, and never suddenly, in order to avoid a shock and painful contraction of the uterus or abdominal wall which would follow.*

(b) When must you finish the sitting? I have just said that two factors should enter into serious consideration,—*the object to be obtained and the sensibility of the subject.*

What then shall be the criterion which shall guide the physician? If the woman tolerates it well, and bears the current without complaining, the duration, according to the therapeutical object in view, should be from five to eight minutes, and even ten minutes. If she does not tolerate it, but complains loudly, threatens to move, and becomes agitated, you must know that you should stop. The whole tact of the doctor consists in not listening to childish complaints, and on the other hand not turning a deaf ear to them when they are real. To continue an operation when it is too painful would be to expose one's self to serious mistakes, and I therefore beg of you to diminish the dose enough to render it tolerable, and if even after being considerably reduced she still complains, you must suspend it. There is every reason to believe that the next sitting will be better borne, either because the emotion of the first beginning will be less, or because the uterus itself will not be so irritable.

(c) If the same intolerance were manifested at the following sitting, you would have reason to suspect a *peri-uterine cellulitis* which had been overlooked, and in the presence of which you must stop, or it may be an extraordinary uterine susceptibility, as I have seen in certain cases of hysteria, rare it is true, which have compelled me to stop my interference at a dose of 30 or 50 milliampères.

(d) Once the handle of the collector has been brought back to zero we mark the parallel return of the needle, which also having reached zero will now pass a little in the contrary sense, a thing which might surprise at first sight the doctor who is not acquainted with the physical effects of electricity.

This is the reason: every application of the continuous current creates at the point of contact of the electrodes with the surface attacked or electrified, an electric polarity or what is called a secondary battery, the current in which is in inverse sense to the primary current which has just stopped. It follows, then, that when we terminate an operation, when the two handles have returned to zero, the figure which

precedes the button marked *repose*, and while there is not, consequently, any couple in the circuit, which, however, still remains closed, the secondary battery, created by the passage of the current at the level of the point of contact of the electrodes with the body, enters in turn into action, and gives rise to a new deviation of the needle in the opposite direction to what it was at first; a deviation which is slight, it is true, and of little intensity, but sufficient, however, to provoke a new and peculiar sensation in the woman, different from that of the beginning or middle of the operation, but sufficient to make her say sometimes to the doctor who has just told her he has finished: 'Are you beginning again?'

(e) You will remove very delicately the intra-uterine sound, steadily and very slowly (13); then you take off the clay and clean the belly of the patient, which has been soiled.

(f) You then wash out the vagina again with the same antiseptic solution, and you leave in there a tampon of iodoform gauze, the use of which has a double object: first, to continue the antiseptic during the interval between the sittings, and secondly, to put a certain amount of impediment in the way of coition, which is very important.

D. AFTER THE OPERATION.—The instructions which you should give to the patient who has just been treated are of the very greatest importance, for on their being well executed the whole success of the operation depends.

(a) If we desire that the treatment should bear its full fruits, it is absolutely necessary that the patient should lie down at full length during a time varying from one to several hours.

If the operation has been performed in the doctor's office, the patient should only go home as late as possible after the colics which follow the cauterization shall have partly disappeared. She should avoid all fatigue and rapid movements, and you must repeat to her that the forgetting of these instructions may expose her to a serious inflammation (such as perimetritis) with all its accompanying miseries.

(b) You should always warn the patient of the uterine colics, which are generally in proportion to the intensity of the operation which she has undergone. Frequently the post-operative period is even more painful than the operation itself. The woman should not be subjected to any surprises, and therefore it is better to tell her beforehand what she may expect.

(c) You will tell her that a sanguineous discharge may appear in the course of the evening as a result of what she has gone through—a discharge which is not severe, and which is generally stopped of its own accord by rest, without any treatment.

(d) The following days she may also have a sero-purulent discharge, which depends upon the same cause, and which only requires antiseptic vaginal injections every night and morning.

(e) You must formally forbid all sexual intercourse that night and the following one; it would be even good to suspend all conjugal relations during the whole course of the treatment, in order to avoid pregnancy, which, if it came on prior to the operation, might result in an almost fatal abortion.

(f) All the discomforts whatsoever which may be felt are generally tolerable, and rest is, without exception, the best way of diminishing them; they disappear of themselves the same evening, or perhaps the following day. In cases, however, where the pain is too great you may order the application of a large emollient poultice on the belly, which will diminish to a certain extent the pain following the application.

(b) *Galvano-puncture Method*.—The details of galvano-puncture treatment I take also from Dr. Apostoli's own direction (see his introduction to Dr. Bigelow's work). Much, however, that has been said of the necessary details in the technique of intra-uterine galvano-caustic applications, bears also on the step of vaginal galvano-puncture.

1. Galvano-puncture in vaginal fluctuating tumours.

'(a) Here, as in all other forms of electrical treatment, faradic or galvanic, a perfect antiseptic irrigation should precede and follow each application. It will be also well to pack the vagina between the periods with gauze (iodoform, salol, or sublimate), to keep up asepsis and to prevent as far as possible all sexual relation, which should be entirely suspended during the treatment.

'(b) The patient should stay in bed one or two days after each puncture.

'(c) The trocar should be the smallest possible, but of a consistence sufficient to prevent its breaking. It should pierce without effort, and is best when made of steel.

'(d) The depth of the penetration is the chief point. One-half a centimètre on the average will be sufficient to open a way for the current into the region which it should traverse. Deep punctures, as I have seen in some cases, are dangerous. I never make a puncture exceeding one centimètre in depth.

'(e) Where make the puncture? *Choice* and *necessity* also come in here. *Choice* leads us to penetrate as near the disease as possible; but *necessity* teaches us to avoid the anterior cul-de-sac in order to avoid the bladder. The lateral regions, and above all the posterior cul-de-sac, are favourable places. I have the most frequently made mine in the latter, in the middle of Douglas, and carrying the axis of the trocar towards the uterus in order to avoid the rectum.

'(f) If made with high intensity chloroform should be used, though certain women support all forms of galvanic treatment without it.

'(g) The use of the speculum in this operation I proscribe. The steps I take are as follows. First fix in the celluloid sheath the needle to the depth of the puncture to be made; then, having ascertained with the index-finger that there is no arterial pulsation, allow it to rest upon the point to be pierced; then slide underneath this finger the celluloid sheath which is to carry the trocar until its open mouth shall rest upon the exact spot; then push the trocar home, its penetrating depth having been properly adjusted.

‘(h) The number of punctures demanded varies. One puncture is sufficient in some cases of hydro-salpingitis or of catarrhal salpingitis ; others demand three or four, and tubercular salpingitis a greater number still. Since the punctures are sometimes followed by an active reaction, a longer rest in bed is demanded than in the other forms of application, and the second *séance* should not follow until all the excitability following the first has subsided.

‘(i) In regard to intensity and choice of poles I call attention to what I have already said under the head of intra-uterine galvanization. At first the dose will vary from twenty to fifty milliampères. To go beyond this without anæsthesia is risky. When a current of one hundred to two hundred and fifty milliampères is demanded for creating a temporary vaginal fistula, chloroform should always be used.

‘(j) The puncture should generally be positive at the beginning, because it is less painful and causes less inflammation. The negative may be used when we seek to create a vaginal fistula to drain a fluctuating tumour, pointing into the vagina, or when, after having used the positive, we need the peculiar effects of the negative pole.

‘(k) If a prolonged high fever supervene all electrical treatment must be suspended. One may believe himself in presence of a pyo-salpingitis, but if it is easily accessible by the vagina, galvano-puncture is indicated ; but if it be high up, not easily reached, and far from the vaginal cul-de-sac, avoid a deep puncture, which may cause rupture of a pus-pocket into the peritoneal cavity.’

2. Galvano-puncture in fibroid tumours. Summary of directions and precautions by Dr. Apostoli : *

1. Absolute and regular antiseptic irrigation of the vagina, before and after each operation.

2. Use as the puncturing instrument a small steel trocar or needle, and let the punctures be shallow, not deeper than two or three centimètres.

3. Make the punctures in the most prominent part of the fibroid whenever possible in the posterior cul-de-sac.

4. Make the punctures without a speculum. Slide the trocar through the celluloid sheath, which protects the vagina, after having examined and chosen by touch the point where the puncture is to be made.

5. Ascertain the seat of any pulsation, so as to avoid wounding an important vessel.

6. In case of any unusual hæmorrhage, *immediately dilate the vagina* with an expanding speculum, and if necessary put a pressure forceps on the bleeding point.

I have thus briefly summarized the more important particulars of these methods of Dr. Apostoli in the application of electricity in certain morbid states of the uterus and its

* Dublin meeting of the British Medical Association, 1887.

appendages. It only remains to make a few general observations on those methods, and their effects on the pathological conditions in which they are employed.

CHOICE OF POLES. THE POSITIVE POLE.—In the instance of fibroid tumours it must be remembered that '*the positive pole is the express remedy for the cases attended with hæmorrhage, the negative pole when they are not hæmorrhagic.*'

The positive pole is indicated in metritis and endometritis, in all forms of ulceration and hæmorrhage. It is also indicated in the subacute stage of perimetritis as an intra-uterine application, one or two sittings in the week, not more than twenty to forty milliampères. The positive pole is recommended by Dr. Apostoli in the rebellious leucorrhœa of endometritis. In membranous dysmenorrhœa the positive pole is indicated. Positive puncture is advised in the first instance in a fluctuating tumour.

THE NEGATIVE POLE is the one indicated in non-hæmorrhagic cases of fibroid tumour, in the chronic stages of subacute perimetritis after the positive pole has been used, in the non-hæmorrhagic forms of chronic metritis and endometritis, in galvano-punctures, in pyo-salpinx combined with strict antiseptic precautions, and galvano-puncture of fibroid tumours, in draining fluctuating vaginal tumours.

To sum up, says Dr. Apostoli, if I had to qualify each pole by its tangible and principal action, I would say, 'If the two poles hasten the retrogression and the denutrition of uterine hypertrophies, united to endometritis and congestive parenchymatous metritis, side by side with this general action may be placed indications special to each of them.'

The positive pole, acid, decongestioning, hæmostatic in the highest degree, is especially useful in the hæmorrhagic, congestive or ulcerative forms. It combats and corrects the tendency to excessive vascularization and by the same process becomes an indirect treatment for rebellious leucorrhœa.

The negative pole, basic, diffuent, little or not at all hæmostatic, is, on the contrary, destined to excite the languid or perverted circulation, and old, atrophic, or indurated forms of chronic metritis by a strong

appeal to the intra-uterine circulation. This is the remedy *par excellence* for indurated chronic metritis, whether complicated with amenorrhœa or dysmenorrhœa, and it may be used with equal success in other inflammatory processes in which hæmorrhage does not predominate. Dr. Apostoli is careful to point out that though the actions here referred to are commonly referred to as 'electrolytic,' they are not so in reality. This point is well put by Dr. Buckmaster in his prize essay.*

'There is,' he says, 'no more justification for the term as applied to the treatment of fibroid tumours than there is for the use of the expression for the application of the galvanic current for the relief of a sciatica . . . the decomposition that takes place at the poles and the changes that occur between them are those of atomic re-arrangement. . . it is "the only chemical change that takes place, so that the term electrolysis, used to indicate some peculiar disintegration that is not always present, is clearly misapplied." He goes on to show that the effect of the current on a fibroid may be attained through its action on the bloodvessels and absorbents, the muscular tissue, the nerves, the connective tissues and the cells directly. He lays special stress on the blanching effect on the tissues, through the contraction of the bloodvessels, and the cataphoric action through the transference of the fluids to the negative pole, about which they accumulate.'"

Dr. P. S. Hayes, in the discussion on Dr. F. H. Martin's paper (from the *Journal of the American Medical Association, British Gynecological Society's Journal*, 1889, p. 489), in referring to the relative effects of the two poles, says :

'The destruction of tissue around the positive pole is not nearly as great as that around the negative ; the oxygen is separated about the positive pole and the acids are liberated, and I find the eschar which follows essentially the one produced by the action of the strong mineral acids on albuminous tissue. On the other hand, if the negative pole is used, we find that the destruction of tissue extends probably twice as far from the electrode. The appearance is entirely different, that from the negative pole looking very much as though it had been frozen, and the scar tissue which results from the use of the negative pole does not contract as firmly as does that which follows the positive, and it seems to me that this can be explained to a large extent by the chemical action which takes place along the electrode. There are two, and, possibly, three factors present in this method of using electricity ; there is the physical effect, due, of course, to the liberation of the gases around the electrodes ; there is the chemical effect, due to the electrolysis or separation of the salts of the body into the acids at one pole and the alkalies at the other ; and then there is the physiological effect, which we do not understand as well as we do the chemical and physical effects. Whatever be the amount of chemical action which takes place around the pole—that is, the uterus—an equivalent amount of chemical action takes place under the electrode that is placed on the abdomen ;

* *Brooklyn Medical Journal*, November and December, 1888. Also 'Electro-Therapeutics,' Bigelow, p. 193.

and almost invariably you will find an irritation of the skin, and you may possibly get a blister within the circumference of the electrode, so that on the second or third day you will find it difficult to apply the electrode where it was first applied. That the electricity, as it passes through the tumour, affects the cell life is a question that has yet to be proven, and I think the determination of the matter can be considered almost entirely due to the peculiar chemical action which takes place around the electrode.'

Dr. Inglis Parsons, on the other hand, as the results of experiments made at the Chelsea Hospital for Women, did not find that difference between the two poles in regard to their destructive action in primary electrolysis (the needle introduced into the tissue of the tumour). These experiments were made on a recently removed fibroid and on a fresh specimen of sheep's blood. He concludes that electrolysis takes place at both poles, and is most destructive at the positive; that it does not occur in the intervening space traversed by the current; that the only change in the vessels is a local hyperæmia; that there is no muscular contraction in the uterus save at the make and break of contact; that in all probability the 'transport of elements' has some effect on the living tissues through which it passes.*

Dr. Martin points out in his paper that 'Cases of intolerance range themselves under the three following heads:

'(1) Hysteria; (2) Enteritis; (3) Acute nephritis, prior parametritis, the most tolerant being the deep uterine and profusely hæmorrhagic. The duration of the *séance* should be from eight to ten minutes; the number of operations will depend on the result to be accomplished. Severe hæmorrhage is checked in four to five *séances*; reduction of a large tumour requires many operations. Short of actual reduction the operator must be satisfied with relief from prominent and annoying symptoms. *Séances* should occur two or three times in the week if compatible with the endurance of the patient, and should be as regular as possible.' Extra-uterine puncture, Dr. Martin considers, should be a last resort, and only when the extra-peritoneal method is unadvisable should the final alternative of abdominal puncture be resorted to.

* *British Gynecological Society's Journal*, May, 1888.

CHAPTER XXII.

AFFECTIONS OF THE FALLOPIAN TUBES.

Abnormalities.

Salpingitis (catarrhal, interstitial, suppurative).

Stricture.

Dilatation.

Pyo-salpinx (pus retained in the tube).

Hæmato-salpinx (blood retained in the tube).

Hydro-salpinx (serum retained in the tube).

Adhesions and displacements.

Carcinoma* (papillomata).

Tubal pregnancy is not discussed in this work.

In a work of this nature I prefer to adhere to my original intention, and introduce only such subjects as are of practical moment and within the diagnostic and manipulative skill of surgeons generally. For this reason I do not propose to delay to discuss at length certain questions connected with abnormal states of the Fallopian tubes, which have rather a pathological than a clinical interest attached to them. The names of Battey and Lawson Tait are so linked with all our modern views of the consequences of Fallopian disease, that it may truthfully be said that it has been through their instrumentality that of late years these affections have attracted the attention now given to them. The great dexterity of Mr. Tait has established the possibility of re-

* Primary carcinoma of the tubes is exceedingly rare.

lieving women, who must be otherwise incurable, from the miseries attendant upon morbid states of the tubes and the associated ovarian and ligamentous diseases. But apart from his unique success as an operator, it will be widely acknowledged by all unprejudiced persons that he has established the important part played by the Fallopian tubes in perpetuating those chronic pelvic troubles that removal of the ovaries alone could not relieve. Here I may, however, remark that statistics that establish the operative skill of a particular surgeon in no way warrant resort to an operation which may in other hands seriously imperil life.

SALPINGITIS.*

Etiology, Causation, and Results.—Salpingitis, or inflammation of the Fallopian tube, frequently accompanies uterine inflammation, acute and chronic; also peritoneal and cellular pelvic inflammations. Hence it is commonly the result of those exciting causes which predispose to these affections. It may also attend on the exanthemata.

Mr. Tait draws a distinction between the salpingitis which mainly affects the mucous lining and that which attacks the substance of the tubes on the outside. The latter is by far the more common. As a result we have severe dysmenorrhœa before and during a period; at times there is a history as of gonorrhœal inflammation, or a miscarriage, or a zymotic fever. Fixation of the pelvic contents, the presence of the characteristic, sausage-like masses at the side of the uterus, are the prominent physical signs.

There is frequently extreme dyspareunia. I have had several such cases, one occurring in the person of a young

* Martin describes two distinct forms of salpingitis: (1) Interstitial endo-salpingitis; (2) follicular endo-salpingitis. There is a degeneration and destruction of the epithelium and muscular elements; the lumen of the tube becomes occluded in one part and extended in another; and, finally, suppuration takes place.

lady in whom most severe vaginitis and metritis were induced by the forcible introduction under chloroform of a large ring pessary, which, unfortunately, was permitted to remain in until it had to be again removed under an anæsthetic.

The student must recollect the sphincter-like action of the muscular fibres surrounding the uterine openings of the tube. Arrest or destruction of the function of these fibres has an important bearing on the entrance of fluids into the peritoneal cavities, and on the danger of intra-uterine medication. We can readily understand how the sphincter action is arrested in severe post-partum hæmorrhage, and destroyed in diseased conditions of the endometrium, or from the growth of tumours in the adjacent muscular structure.

I have already referred to the occasional passage of the uterine sound into the tube in *dilated* or *saccular* states, and this fact also has an important bearing on intra-uterine medication, and the occasional bad results which attend on it. The opposite condition, or the one of *stricture* of the tube, is a well-understood cause of sterility. Stricture or closure of the tube may produce distension and accumulation of fluids in it—mucus, pus, or blood may collect in the tube. Distension may lead to retro-flow of the fluid, or *rupture* of the tube. *Adhesions, displacements, cystic enlargements*, are also some of the remote results of inflammation, either primary or secondary, of the tubes. Such an unusual accumulation of fluid, even to the size of a child's head, is termed tubal dropsy. I do not allude to extra-uterine foetation. This accident of pregnancy is fully discussed in all obstetric works. The possibility, however, of a pelvic hæmatocele arising at any time during the growth of the ovum, from this cause, must not be lost sight of. So may this complication follow from a congested state of the mucous membrane, and any rupture of the tubal vessels.

Diagnosis.—By a careful digital examination, we may detect effusions, thickenings, enlargement, adhesions, or tumours. But such diagnosis requires considerable experience in gynecological examination. Mr. Tait's view, as strongly urged by him, is that, in a great number of cases, no step save an exploratory abdominal section enables the surgeon to discover the nature of the disease. Concise directions for the precautions to be taken in making an abdominal exploratory incision have been laid down by Mr. Stainsbury Sutton (*Journal of the American Medical Association*, January, 1887) :

1. Perfect cleanliness of the patient's abdomen.
2. Perfect cleanliness on the part of the operator.
3. Perfect cleanliness of the instruments.
4. Thorough anæsthetization of the patient.
5. The incision is to be small, and all bleeding must be arrested before the peritoneum is opened.
6. Careful opening of the peritoneum ; the passage of two fingers for purposes of exploration, if necessary ; for further searching of the abdomen, enlarge the wound in an upward direction, and search again.
7. The operator alone is to put his hand into the abdominal cavity.
8. Make a careful peritoneal toilet ; if necessary, flush out with warm water and sponge this all out. Pass the sutures over a flat sponge laid beneath the wound.
9. Do not use carbolic acid or sublimate solutions, save as a means of disinfecting the operator's hands.
10. Dry the lips of the wound with iodoform gauze.

To this we would add, use dry salicylic or boric absorbent wool as the external dressing of the wound ; avoid opiates if possible ; if sleep is required, give thirty grains of sulphonal, if a dose of bromide of potassium does not secure it.

Removal of the Uterine Appendages.—The question remains,

On what grounds are we justified in removing the ovaries and appendages in a woman for disease in the ovaries or Fallopian tubes? Every now and then we meet with cases in which every known means has been tried to combat pain, to enable a patient to walk, to tide over with safety menstrual periods, to reduce localized swellings, often recurring, in the broad ligaments and pelvic peritoneum.

In many of these cases we can date the commencement of such to some attack of parametritis or perimetritis. There may have been a gonorrhœa. In others we find nothing definite: some history of dysmenorrhœa, menorrhagia, periodical peritoneal attacks, sterility and futile operations on the cervix, with all those symptoms included under the ambiguous term of chronic ovaritis. Examination by the vagina reveals at the most a uterus drawn out of place by an old adhesion, a displaced or painful ovary, some localized swelling, a sensitive uterus. It is in some such women that Mr. Tait's operation appears to be called for and justifiable.* Be it remembered, however, that the marvellously low mortality (three per cent.) arrived at by him, and not yet reached by any other living operator, is no justification for the resort to this serious step by every 'prentice hand' who happens to meet a case in which he thinks the indications for operation are present. Mr. Tait always strongly insists on this. And not only have we to consider the operator's manipulative skill, but also the inherent difficulties—indeed, we may truthfully say, the impossibilities of diagnosis. No man has shown this latter contingency more clearly than Mr. Tait himself. He has again and again exhibited specimens of ovaries, diseased Fallopian tubes, myomata, removed under circumstances far different from those for which this operation was originally proposed and even carried out. A tense and distended Fallopian tube

* See indications for oöphorectomy, page 422.

has been mistaken in vaginal examination for fibromyoma; hydro- and pyo-salpinx have been mistaken for ovarian tumour, and *vice versâ*. The menorrhagia, dysmenorrhœa, and localized swelling which are present in pyo-salpinx, as a rule, are not in themselves sufficient to secure an accurate diagnosis, and it must always occur, even to the most distinguished surgeons, that only by an abdominal section can the certainty of the disease be arrived at. In a letter which he has written me on the subject, Mr. Tait says: 'Concerning the removal of the uterine appendages, the points that I want to lay stress upon are, chiefly: First, that no operation for the removal of the uterine appendages ought to be left unfinished. The opprobrium of all this class of work will in the future be unfinished operations. They are far more difficult than any other operations in abdominal surgery, and therefore their undertaking should be limited to a relatively small number of men. Second, that if for chronic inflammatory disease it is necessary to remove one set of appendages, both ought to be removed, because a second operation will in all probability be necessary, and these second operations are far more dangerous than the first.'

But (as Sir Spencer Wells remarks) cases are by no means few (and I have known some startling instances of the fact) where operation has been advised and declined by the patient or consultant, yet recovery has followed other treatment, and the unmutilated woman has married and borne children.

CHAPTER XXIII.

OVARIAN DISEASES.

Abnormalities.

- „ absence.
- „ imperfect development.

Atrophy.

Displacements.

Hernia.

Prolapse.

Apoplexy (rupture of vessels, and sanguineous effusion).

Ovaritis.

- „ acute.
- „ chronic.

Solid tumours.

Carcinoma.

Fibroma.

Tubercle (Wells).

Cystic tumours.

DISPLACEMENTS OF THE OVARY.

Hernia of the Ovary.—This is a very rare affection. It is usually congenital and double, but its accidental occurrence as the result of strain or injury is not to be overlooked. Hernia of the ovary is usually associated with some con-

genital malformation of the genital organs, either uterus or vagina, or both.

Diagnosis.—A tumour in the inguinal canal, about the size of a walnut—with coughing the mass may protrude into the inguinal canal. On drawing the uterus down with a hook or vulsellum, the tumour is dragged on and pulled with the uterus. An interesting case of double hernia of the ovary, with congenital malformation of the uterus and vagina, was brought before the Gynecological Society by Dr. Heywood Smith. Mr. Hulke removed one ovary, and Dr. Heywood Smith the other. Should the ovary be painful, with associated menstrual and reflex troubles, this is the best course to pursue. A hollow shield may be worn.

Prolapsus.

Varieties (Mundé):

Retro-lateral.

Retro-uterine.

Ante-uterine.

In the infundibulum of an inverted uterus.

Causes:

Pregnancy and parturition.

Uterine displacements.

Congestive states.

Sudden jolts, etc.

Diagnosis.—On examination by the vagina and rectum, the sensitive ovary is felt.

Treatment.—Avoidance of coitus; the hot vaginal (medicated) douche; a course at Woodhall Spa; such aperient waters as those of Victoria and Hunyadi Janos; bromides internally. A soft air ring pessary is often of service, or the Hodge with glycerine air-pad. The patient should sleep with the bed raised about six inches at the foot. Dr. Mundé has devised a special pessary for lateral

prolapse. But the surgeon may mould a soft pessary to the required shape, according to the position of the ovary.

OÖPHORITIS (OVARITIS).

Etiology, Causation, and Pathology.—In the earlier editions I have associated oöphoritis with parametritis and perimetritis, because it is most frequently met with either as a complication or extension of these affections.* It is doubtful, however, whether inflammation of the pelvic peritoneum may not more frequently originate in the ovary (Aran) than we think. The ovary is more or less involved in any severe case of parametritis or perimetritis. So it is also uncertain if uterine inflammatory conditions may not, oftener than we fancy, arise as secondary results of both acute and chronic ovarian hyperæmia and inflammation.

It is no doubt unusual to see a case of uncomplicated oöphoritis. Still, we do occasionally meet with it, both as a result of chill taken at the menstrual period, and in the early stages of gonorrhœa. During my connection with the Cork Fever Hospital (eleven years), I frequently saw well-marked cases of oöphoritis in patients suffering from typhoid fever. It is impossible in such cases, or in the exanthemata, to say how far the ovaries may have been involved by previous inflammatory or degenerative changes. Again, in typhoid fever we can readily understand how the ovaries may become involved in the adjacent peritoneal and glandular mischief. Dr. Matthews Duncan attributes the occurrence of oöphoritis frequently to the abuse of alcohol. Reflex excitement of the ovarian nerves may originate it, much in the same manner as orchitis occurs in the male. Hence we have it following excessive sexual intercourse, masturbation, and the passage of the uterine sound. I have

* 'We believe,' says Emmet, 'that the ovaries suffer far more from peritonitis or cellulitis in their vicinity than from disease originating within or confined to their own structure.'

no doubt that such reflex nerve disturbance leads frequently to more grave results than we could possibly anticipate from so slight an exciting cause as the use of the sound. I believe the analogous febrile condition, which Sir Andrew Clark has drawn attention to as arising from the passage of the catheter in the male, may be accounted for in precisely the same manner.

Oöphoritis is acute or chronic. The acute form is subdivided into follicular and interstitial. The former is an inflammation, leading frequently to suppuration of the Graäffian follicles. In the latter, the connective-tissue is attacked. The inflamed and swollen ovary may suppurate. But an active hyperæmia of the ovary may persist for a length of time, without further consequences than hypertrophy of the connective-tissue and interstitial thickening, with effusion. This hyperæmia leads to areolar thickening, pressure on, and obliteration of, the follicles, further cicatrization of the connective-tissue, and, ultimately, a cirrhotic state of the organ. In thickening of the peripheral layers of the stroma we have a satisfactory explanation of the accompanying sterility, for the ripened ovum cannot escape. Abscess and cystic degeneration are the occasional results of either acute inflammation or prolonged congestion. Cysts may result from the extravasation of blood and the degeneration and absorption of the coagulum.

Pathological Changes in Chronic Oöphoritis.

1. Follicular degeneration of Graäffian follicles.
2. Interstitial changes in the stroma, neoplasms, sclerosis, cirrhosis, encysted abscesses.
3. Peritoneal inflammation, and sub-peritoneal thickening of the albuginea.
4. Various adhesions of the ovaries to the surrounding pelvic structures.
5. Liquefaction of interstitial effusions of lymph and blood, furnishing secondary serous, caseous, and sanguineous contents of cysts.

[We are especially indebted to Nagel, Gusseron, and Petit, for more accurate knowledge of these pathological changes.]

Diagnosis.—The enlarged and painful ovary may be felt, (a) by palpation, through the abdominal wall; (b) by the vagina, by a careful digital examination; (c) by rectal exploration, and especially by the conjoined recto-vaginal examination. It may vary in size, feeling about the size of a large almond, or even of a pigeon's egg. Pressure on the ovary excites pain. But it must be remembered that pain in a woman who is hysterical and nervous can be made the excuse for any or every form of unjustifiable charlatanism. Therefore we must largely discount the exaggerated sensitiveness complained of when making our diagnosis, and not attach too great importance to it.

'Who,' asks Emmet, 'are the sufferers from a condition which has been termed an irritable ovary? The young girl who has had her brain developed out of season; the woman who has been disappointed or crossed in love by some man not worthy of her' (and, he might have added, the girl who is made the subject of unsatisfying and exciting embraces, foolishly permitted and condoned during long engagements); 'those who have been ill-mated and often unmated; she who has sold her person, under the guise of marriage, for money or position; the prostitute; and she who degrades herself and sacrifices her womanhood by resorting to means to prevent conception. In all of these the nervous system has been first abused, and then nutrition has suffered, some accident only locating the effects in the ovary.'

Symptoms and Physical Signs.—These will depend on the severity of the attack, any collateral disease, or the acute or chronic nature of the affection. Ovarian congestion may be accompanied by any form of pelvic or uterine inflammation. As we have seen, oöphoritis, acute and chronic, may be attended by any or all of the following symptoms: oöphoria; dysoötocia (Robert Barnes); dysmenorrhœa;

dyspareunia ; hysteria and hystero-epilepsy ; various remote (reflex) pains ; neuralgia ; inability to walk ; pain in defæcation ; sterility.

Treatment.—Complete rest when there is any acute inflammation ; the knee-elbow position assumed for some time daily (Goodell) [the bed or couch on which the patient lies may have the foot raised about four inches by blocks of wood or long castors (Heywood Smith)] ; avoidance of

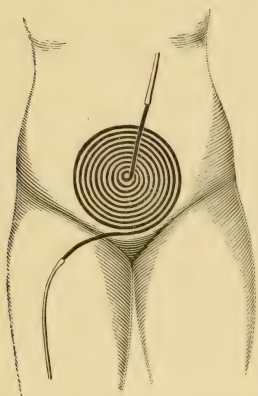


FIG. 199.—Leiter's Tube applied.

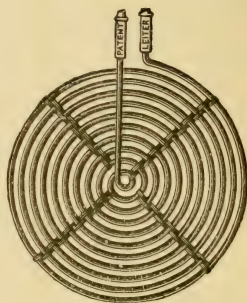


FIG. 200.—Leiter's Temperature Regulator.

sexual intercourse ; leeches to the inguinal region or the anus ; vesication over the inguinal region ; iodine paint over the same part, or a combination of chloroform (3i.), extract of belladonna (3ss.), mastich (3ii.), camphor (3ii.), and rectified spirit (3i.), applied with a thick brush.* Leiter's tube can be applied during inflammatory states. The bromides may be given internally, and, in the chronic stage, iodide of potassium. If dysmenorrhœa, hysteria, hystero-epilepsy,

* This is an admirable application to relieve pain. It forms a pigment, and can be reapplied daily.

neuralgia, persist, and render the woman's life miserable, the operation of oöphorectomy (Battey) is to be considered, and, after due consultation, may have to be performed. Battey's original operation (now discarded) was performed through the vagina, the cervix uteri being hooked well forwards to the pubes, and the sac of Douglas opened by means of scissors. The ovary was reached by the finger, seized by forceps, and drawn into the vagina; it was secured by a silkworm gut ligature, and cut off. It is questionable if both ovaries should be removed if one be normal. The ovaries, however, are now almost invariably removed by abdominal section.

To perform oöphorectomy we proceed as follows:—The patient is placed on a table about five feet long by two wide, opposite a good light, and anæsthetized. If we determine to use antiseptic spray, we may employ the carbolic acid (1 in 50) or perchloride of mercury spray (1 in 10,000). Under any circumstances it is right to cleanse the abdominal wall with carbolic water before making the incision, and to take all other precautions with regard to scrupulous cleanliness in assistants, fingers, instruments, and sponges. The incision, about an inch and a half long, is made in the middle line, and sufficiently large to admit the fore and middle fingers of the left hand. The preliminary steps are the same as in ovariectomy, as regards the control of all bleeding points before opening the peritoneum, and in subsequent careful division of it. The fundus of the uterus will guide the finger to the broad ligament, Fallopian tube and ovary. The Fallopian tube may be found distended with fluid, and a small aspirator may have to be used to draw this carefully off. The escape of fluid has to be guarded with a sponge. The ovary having been drawn into the wound, the edges of which are depressed by an assistant, the Fallopian tube is well exposed. A loop of

double ligature is passed through the centre of the broad ligament, avoiding the vessels. The loop is then turned back so as to include both the ovary and tube in the two loops thus formed. One free end is next passed through the returned loop, both ends are now drawn tightly, tied, and then cut off (the Staffordshire knot). The ovary and tube can now be removed, cutting neither too close to, nor too far from, the ligature. The stump is dropped back into the cavity. Any fluid or blood is thoroughly removed by careful sponging, especially from the pouch of Douglas. The abdominal toilet is then made. A drainage-tube (Keith's or Tait's) should be used if the peritoneal cavity

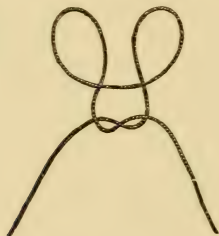


FIG. 201.—Staffordshire Knot.

has been washed out. Mr. Tait uses a continuous, which is cut subsequently to convert it into an interrupted, suture. The two ovaries and tubes are, as a rule, removed.

THE INDICATIONS FOR OÖPHORECTOMY FOR AFFECTIONS OF THE OVARIES AND TUBES OTHER THAN TUMOURS.

It is, unfortunately, true that wide differences of opinion still exist on the indications for removal of a woman's ovaries and uterine appendages. In medical societies and medical literature strong language has been used on either side, both by those who favour and those who oppose the operation under certain conditions. It is no exaggeration to say that statements as regards the responsibility, even the criminality, of those who hold for the operation have been made which ought never to have found a place in scientific discussions. This is the more to be

regretted, seeing that those who have thus intemperately declared themselves are clearly biassed, and, in some instances, have used language which shows a spirit amounting to personal animus to certain distinguished operators. It is the more unfortunate, as such opinions and expressions are repeated, and are often retailed in exaggerated terms by patients or their women friends, who have come to discuss removal of the ovaries by the surgeon much as they would the alteration in some fashionable costume by their milliner. The introduction of electrolysis as a means of treatment for some of the states for which oöphorectomy is performed has recently accentuated this difference of opinion, both on the part of those who hold and those who do not hold to its efficacy as a means of cure. A reference to the reports of the discussions following Dr. More Madden's paper read at the British Gynecological Society (1887), that of Dr. Burton, before the International Medical Congress (1887), at Washington, and the more recent utterances of Dr. Keith in his communications on the subject of electrolysis, exhibit the undue, if not unseemly, warmth exhibited by opposing authorities in the consideration of such questions. The truth of Dr. Apostoli's assertions as to the value of the galvanic current in the cure of many of the states for which oöphorectomy is resorted to, can only be confirmed by future experience, and it is premature yet to dogmatize one way or the other (*vide* chapter on Electro-Therapeutics). In view of such differences of opinion, and, indeed, of the teaching of experience, both as regards the justification for and the permanent benefit derived from the operation, it may be well to briefly recapitulate the indications justifying the operation of oöphorectomy, on which there appears to be a general consensus of agreement on the part of unprejudiced gynecologists:

1. Uterine myomata which from any cause threaten life.
2. Diseased conditions of the ovaries that resist all palliative treatment, and which both embitter and endanger life.
3. Those conditions of the Fallopian tubes, isolated or associated, which are not amenable to other means of cure, and in which sudden danger to life may arise, or where there is such constant suffering as to make life miserable, or ultimately to destroy it.
4. Some incurable and obstinate cases of dysmenorrhœa, unaffected by any course of palliative treatment or milder operative measures undertaken for the relief of pain, and other attendant neuroses. In these the association of any of the previous conditions adds to the justification of operation.
5. Those cases of epilepsy and hystero-epilepsy in which there is clear evidence of correlation between these attacks and such affections as ovaritis, ovarian displacements, enlargements, or degenerations, with or without accompanying tubal pathological conditions.
6. Both ovaries should be removed, (a) where the operation is performed for the arrest of growth and hæmorrhage in myoma; (b) in dysmenorrhœa where the object is to produce premature change of life—in neuroses associated with dysmenorrhœa, recurrent ovaritis, displaced and sensitive ovaries; (c) where both ovaries, or both ovaries and both tubes, or one ovary and both tubes are diseased.

7. The operation is only to be undertaken after full consultation, and when the consequences and risks are fairly placed before the patient and her immediate relatives.

TUMOURS.

Wells, for descriptive purposes, thus classifies simple ovarian cystic tumours :

- '1. *Ovarian*: Enlarged Graafian follicles.
- '2. *Extra-ovarian*:
 - '(a) Cysts of Wolffian body.
 - '(b) Cysts of broad ligament.*
 - '(c) Cysts of Fallopian tubes.
 - '(d) Cysts developed in the subperitoneal tissue of the pelvis or abdomen.
 - '(e) Cysts developed from aberrant ova.
- '3. Compound adenoid tumours :
 - '1. *Multiple*, consisting of cysts aggregated together.
 - '2. *Proliferous*, or parent cysts, filled with cysts of secondary growth.'

Cysto-carcinoma.

Cysto-sarcoma.

Dermoid cysts.

ORIGIN OF OVARIAN AND EXTRA-OVARIAN CYSTS.

Simple ovarian :

1. Graafian follicles (Wells, Wilson Fox, Rokitansky, and others); or,
2. Interstices of the stroma (Wells, Waldeyer, Lücke, and others).
3. Partial dilatation and partial obstruction of enlarged and thickened bloodvessels (Noeggerath, Harris, and Doran).

Extra-ovarian :

Tubules of the parovarium.

Terminal bulbs of the Wolffian body.

* See p. 443.

Extra-ovarian (continued) :

Subperitoneal tissue.

„ „ connecting peritoneum.

Fallopian tubes and uterus.

Fallopian tube and ovary. (During the grasping of ovary by the fimbriated extremity of the Fallopian tube in menstruation.)

The more recent researches of Messrs. Harris and Doran would point rather to the degenerative changes occurring in the follicles than in the stroma.

The changes occur in the Graäffian follicles that have undergone involution without rupture.

‘They are not due to inflammation.’

‘They begin as exaggeration of the normal process of involution, which is never a mere disintegration and degeneration of the follicle.’

From the researches of Sinéty and Malassez, it would appear that the cysts may be developed from hollow epithelial cylinders. These do not contain ova. Dr. Galabin says that he has found ‘a similar glandular growth, commencing from Graäffian follicles, every stage being visible, from that of a single pouch or diverticulum, in the wall of the otherwise spherical follicle.’ These epithelial tubes are not true Pflüger’s ducts, from which Waldeyer considers ovarian tumours are developed. This is a new adenomatous formation; the cystic development is secondary. ‘The first trace of the cyst,’ says Schroeder, ‘the *ovarian follicle*, is probably always congenital; indeed, we shall have to go even further than this, inasmuch as small degenerated cysts are frequently found in new-born infants, a fact which seems to prove that the very beginnings of the tumour-formation are congenital, and that these beginnings persist for a long time (almost always until after puberty) without further development.’

But he does not regard any form of ovarian cystoma as simply congenital 'in the sense that the foetal glandular follicles, which give rise to its development, are preserved after birth, but that small cysts (sometimes as large as peas) are themselves congenital, which remain of the same size during childhood, and later begin to undergo a further development.' Cysts may develop after the rupture of the follicle, from the corpus luteum, after closure of the orifice where the rupture occurred. The presence of ova in the cysts has been proved by Rokitsansky, Ritchie, and others. Colloid material is found in the small cysts at the time of birth, but the development of the cyst does not take place until after puberty. Proliferous growth of cysts (multilocular), according to Wilson Fox and Waldeyer, is due to glandular secondary formation from the walls of the cyst. In one variety the epithelial elements take the principal part in the proliferation; in the other, the connective-tissue forms papillary growths, which project into the interior of the cyst. Both varieties of growth may be found in the same cyst. In some tumours the excessive development of gland-tissue may convert the cyst into a solid mass. Sir Spencer Wells, in explaining the mode of proliferation in cysts, points out that the Graafian follicle is itself a proliferous cell—in the generation of the germinal vesicle, germinal spot, and the further cell formation through the spermatic influence. Blasting of the ovum, from any cause, gives rise to abnormal cell development, which shows itself in 'eccentric shapings' and groupings, and ultimately in 'pouch-like projections.*' The proliferous cyst soon fills with progeny. The surfaces of these secondary growths are covered with a 'generation of epithelium,' which may in their turn form cysts—new cystic productions.†

* A process of repeated germination.

† See p. 428 on the classification and pathology of cysts of the ovary and parovarium—Dr. Bland-Sutton.

Pathological Anatomy.—The unilocular character of the cyst depends upon the absorption or bursting of the wall intervening between the two cysts. This is due to pressure. The rupture becomes larger, and finally the smaller cyst forms a rounded prominence on the wall of the larger one (Schroeder). By the fusion of several cysts in this manner, the unilocular cyst is formed. The septa found in the interior of the cyst are the remains of the old cyst-wall. The multilocular is the primary condition, the unilocular is the secondary product of this gradual merging of several cysts into one. The entire cystoma consists of a pedicle, cyst-wall, and fluid contents.

The Pedicle is made up of the ovarian ligament, the broad ligament, the Fallopian tube, and the connective-tissue.

‘The *walls*,’ says Wells, ‘of even these enormous sacs are, after all, in their simple forms, only the continued growths of some of the original ovarian tissues. No new elements are superadded. There is only a surplus of material, mal-arranged and out of place.’ At first the cysts are seen projecting from the stroma of the ovary, or enveloped by its fibrous tissue. The coats cannot then be distinguished from the natural structure of a Graafian follicle: ‘with growth comes greater thickness, opacity, and firmness.’ The coat consists of its epithelial lining, the fibrous layer, with its nerves and arteries and veins, and the external covering or peritoneum. The thinnest portion of the tumour is that which is most distant from the pedicle. Pressure, over-distension, and interruption of the circulation may lead to degeneration and rupture of the sac-wall.*

Extra-ovarian Cysts may form in the broad ligament, in the tubules of the parovarium from the expansion of the

* See p. 24.

terminal bulbs of the Wolffian body, or they may develop in the tissue connecting the peritoneum with the uterus. Cysts of the parovarium are generally unilocular. They may, however, develop papilloma (Bantock), and other degenerative changes occasionally occur in their walls. They contain a clear, watery fluid of low specific gravity, and with very little albumen. The cyst may grow to a very large size. The peritoneal covering peels off readily after death, thus distinguishing the parovarian cyst from the ovarian (Duncan). The simple nature of the fluid when examined during life may enable the surgeon to diagnose a parovarian from a true ovarian cyst. Such cysts may rupture, and a spontaneous cure may follow.*

Mr. Lawson Tait describes cases of extra-peritoneal cysts, closely resembling ovarian cysts, detailing the particulars of twelve cases in which these tumours occurred. Those cysts appeared in two instances to be developed from the urachus, in another from the Fallopian tube. They were not intra-peritoneal. In fact, in some instances, there appeared to be an absence of the pelvic peritoneum. The cyst walls were related to the parietes in front, and the peritoneum posteriorly. The cysts were opened and emptied of their contents, and a drainage-tube inserted; in some instances the cysts were removed, or portions of the cyst wall. Of the twelve cases four died.

THE CLASSIFICATION AND PATHOLOGY OF CYSTS OF THE OVARY AND PAROVARIIUM.

The human ovary, like that of most mammals, presents three parts, each giving rise to cysts possessing distinctive features. These three cyst-regions are diagrammatically represented in Fig. 202:

* Bantock (Trans. Brit. Gyn. Soc., vol. i., p. 309) instances a case of a parovarian cyst tapped seven times, afterwards removed, and he insists on the necessity for removing the cysts as the proper treatment, rather than that by mere evacuation.

1. *The Oöphoron*.—This is the region in which ova are found.
2. *The Paroöphoron*.—This is termed by a few authors 'the tissue of the hilum.' It is composed almost entirely of mesonephritic remains (Wolffian body) in varying stages of retrogression.
3. *The Parovarium*.—This represents the segmental tubules and duct of the mesonephros, and consists of three parts. K, *Kobelt's tubes*; C, the *vertical tubes of the parovarium*; G, *Gartner's duct*.

The cysts peculiar to each region may be classed thus :

1. *Oöphoron*.—Unilocular Cysts. Multilocular Cysts. Dermoids. Cystic corpora lutea.

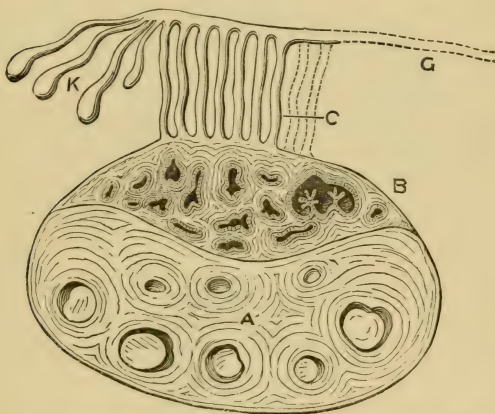


FIG. 202.—A diagram representing what may be called the *Cyst Regions* of the Human Ovary. A, oöphoron; B, paroöphoron; C, parovarium; with K, Kobelt's tubes; and G, Gartner's duct. (Bland-Sutton.)

2. *Paroöphoron*.—Papillary Cysts.

3. *Parovarium*.—Parovarium Cysts. *Kobelt's tubes* give rise to pedunculated cysts hanging from the broad ligament.

OÖPHORITIC CYSTS.—1. *Unilocular Cysts*.—The term unilocular is mainly of clinical significance, for it is rare to find an oöphoritic cyst consisting of one cavity only. A careful examination of so-called unilocular cysts will nearly always reveal the existence of numerous smaller loculi in their walls. Nevertheless, a single-chambered cyst is now and then seen, but even in some of these a close scrutiny will enable us often to detect the remains of septa in some part or other of the cyst-wall, showing that the cyst was originally compound.

An incipient oöphoritic cyst is represented in Fig. 203. The cyst is an enlarged ovarian follicle, and its walls have a well-marked membrana

granulosa. As the cyst enlarges, it rapidly produces absorption of the ovarian tissue. The lining-membrane of unilocular cysts varies greatly : in very large cysts, as a rule, the epithelium atrophies, the consequence of continual pressure from the accumulating fluid. In cysts of moderate size, squamous epithelium may be found, and occasionally the cyst is lined with mucous membrane, covered with a single layer of columnar cells, and rich in glands collected in clusters, resembling the cotyledons of a pregnant ruminant uterus. The histological characters of this kind of mucous membrane are sketched in Fig. 204.

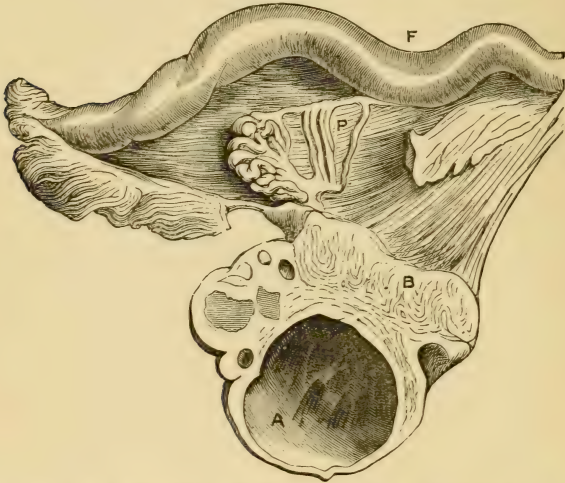


FIG. 203.—An incipient Oöphoritic Cyst. A, oöphoron ; B, paroöphoron ; P, parovarium ; F, Fallopian tube. (Bland-Sutton.)

In a third class of unilocular cysts, the main cavity may be lined with skin furnished with hair, teeth, sebaceous and sweat glands, unstriped muscle-fibre, bone, nipples, and mammary glands. Such are usually termed dermoid cysts, Fig. 205 ; but as no fundamental distinction can be drawn between skin and mucous membrane, cysts lined with one or both of these structures should be classed as dermoid. In some instances the epithelium is arranged in superimposed layers and squamous in character, so that it is impossible to decide, in the absence of hair, teeth, or glands, whether it should be classed as skin or mucous membrane.

The main features of unilocular oöphoritic cysts may be summarized thus :

1. They do not burrow between the layers of the broad ligament.

2. Epithelium may be absent in very large cysts. In those of moderate size, squamous cells are usually found.
3. The interior may be clothed with typical mucous membrane.
4. Skin, with its various appendages, may be present.
5. In size, cysts may vary from an ordinary ovarian follicle to one containing two or three gallons of fluid.
6. The contents may be a thin colourless fluid, containing 'n old cysts cholesterine, or thick and tenacious mucus. The fluid may be dark and grumous from admixture with blood, or con



FIG. 204.—Magnified section of an Ovarian Cyst, containing mucous membrane and mucous glands. (Bland-Sutton.)

tain semi-solid pultaceous matter mixed with hair and epithelial debris.

7. In cysts with twisted pedicles blood is mixed with the fluid, giving it a characteristic chocolate colour.
8. In rare cases the cysts may be filled with pus.

2. *Multilocular Cysts*.—The various members of this group fall under three headings—simple multilocular cysts, adenoma, and dermoids. An early stage of the simple multilocular cyst is sketched in Fig. 206. The incipient cysts are entirely confined to the oöphoron. As the cavities enlarge, they may press upon each other, leading to

absorption of the contiguous walls, and establish a communication with each other. Thus a cyst originally multilocular may ultimately become unilocular in the sense that one cavity predominates in size, the companion cavities forming loculi in its walls.

But the more important are the adenomata, in which the loculi are occupied by a rich growth of racemose glands secreting mucus. As the adenoma increases in size, the glands in its walls become converted into retention cysts, so that large tracts of such tumours present on a section a honeycomb-like appearance (Fig. 207). The original cavities are called primary loculi ; those arising from retention of mucus in the

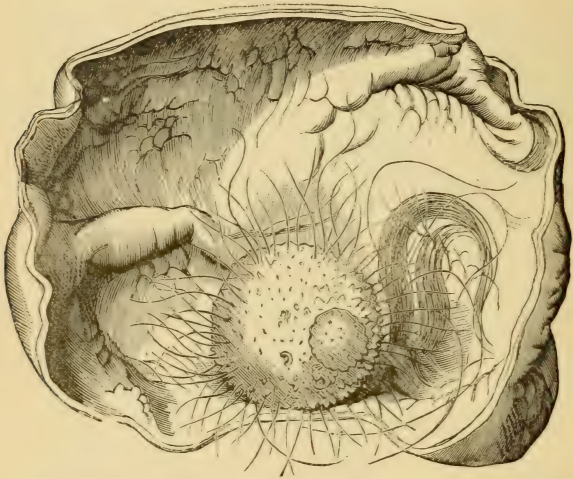


FIG. 205.—An Ovarian Dermoid with a spurious mamma and nipple growing from its wall (Museum, Royal College of Surgeons). (Bland-Sutton.)

acini of the glands are called secondary loculi. These tumours attain a great size.

From multilocular cysts lined with mucous membrane we pass to those which possess in one loculus a small tuft of hair, to others which present skin or mucous membrane furnished with hair, sebaceous or sudoriparous glands, unstriated muscle fibre, fat, and teeth in every loculus.

Occasionally tumours occur presenting three distinct types of cysts ; that is, one set of cysts contain skin, hair, sebaceous glands, and teeth ; others present only clusters of mucous glands and mucous cysts ; and the third set are indistinguishable from ovarian follicles.

Thus, as in the case of unilocular cysts, it is impossible to demarcate between adenomata and dermoids. In specimens without glandular

contents it is often impossible to determine whether the lining membrane should be classed as mucous membrane or skin.

3. *Cystic Corpora Lutea*.—Cysts arising in corpora lutea are interesting pathologically, but of no clinical import, as they rarely attain a large size. Such cysts are occasionally found in the human ovary, but they occur with great frequency in the ovary of the cow, mare, and numerous other mammals. In the recent state they are easily recognised, the walls of the cyst presenting the characteristic yellow tissue; the cyst-wall, when examined microscopically, does not present a definite lining membrane or epithelium.

In very rare cases cysts developed in corpora lutea have contained solid faceted bodies resembling calculi.

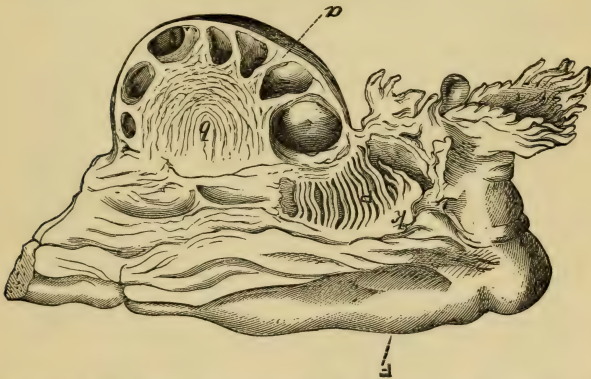


FIG. 206.—A Human Ovary in section, showing a multilocular cyst in an early stage. *a*, oöphoron; *b*, paroöphoron. (Bland-Sutton.)

Multilocular ovarian cysts may attain enormous sizes. Specimens of adenomata have been reported as weighing thirty or more pounds; multilocular dermoids have been seen weighing twenty pounds.

Such larger tumours are now rarely seen, especially as ovariectomy is the safest of all the major operations in surgery.

Ovarian cysts are subject to the following secondary changes:

1. Rupture.—This may be caused by accident, such as a blow or fall. In other cases it may be due to gradual absorption induced by the pressure of a secondary cyst upon the outer wall of the main cyst.
2. The cyst may suppurate in consequence of tapping and the admission of air; it may also arise from adhesion to intestine, and the passage of gases and fluid from the bowel or bladder to the cavity of the cyst. This is most frequently seen in dermoids.

3. The pedicle may twist, leading to venous engorgement of the tumour and hæmorrhage into its walls and cavity.
4. In consequence of adhesion the cyst may continue to be nourished independently of its pedicle, and in some instances the torsion may lead to the complete rupture of the pedicle.

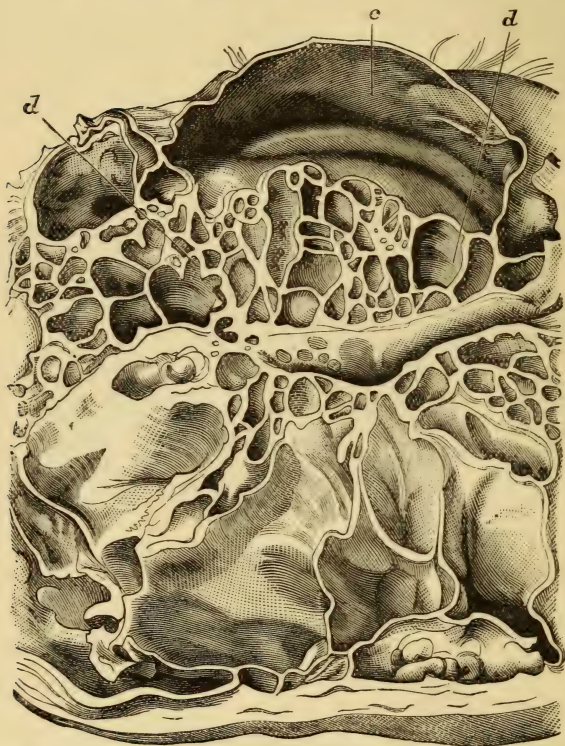


FIG. 207.—Portion of a Multilocular Ovarian Cyst—adenoma—showing the varieties of loculi, *c* primary, *d* secondary. (Bland-Sutton.)

In such cases the cyst forms an adventitious connection, and Doran has clearly pointed out that in cases where abdominal dermoids have been found attached to the omentum there is sound evidence for the opinion that they arose in the ovary, but formed subsequent connection with the omentum and intes-

tines, gradually losing their uterine relations in consequence of torsion.

5. An ovarian cyst may arise in each ovary, and coming into contact across the middle line may, by pressure, coalesce and form an apparently single tumour.

CYSTS OF THE PAROÖPHORON.—Paroöphoritic cysts are distinguished by the following characters: Usually they are sessile, and do not affect the shape of the ovary until they have attained a large size. Unlike oöphoritic cysts, they make their way between the layers of the broad ligament and Fallopian tube. As a rule they are unilocular, contain clear fluid, and the interior is not infrequently beset with papillomatous masses. Occasionally these wart-like processes crowd the interior of the cyst. These warts are very vascular, bleed freely when handled, and sometimes calcify. Such cysts may rupture, and the

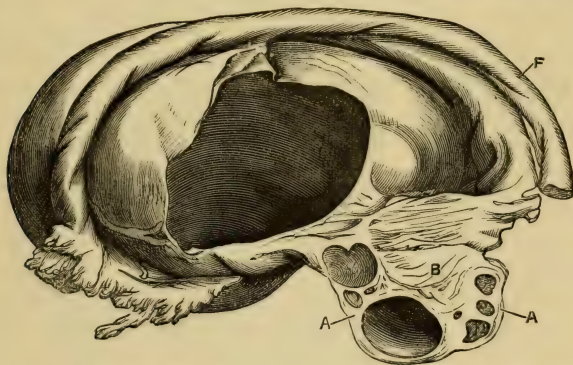


FIG. 208.—A Cyst of the Paroövarium, showing its relation to ovary and tube. A, oöphoron; B, paroöphoron; F, Fallopian tube. (Bland-Sutton.)

contents be disseminated through the peritoneal cavity. Portions of the warts may engraft themselves on the peritoneum and grow into independent warts.

In their early stages such cysts resemble, in their relation to the broad ligament, those arising in the paroövarium; but when they attain a large size they burrow very deeply between its layers. When this occurs the ovary suffers, and it is very difficult and often impossible to find the remnant of this organ.

Coblentz seems to have been the first to clearly identify and distinguish these cysts from ovarian and paroövarian cysts, and to associate them with definite structures.

CYSTS OF THE PAROÖVARIUM.—Cysts of the paroövarium are of two kinds—small pedunculated cysts, mainly arising in Kobelt's tubes (see Fig. 202), and large sessile cysts, situated between the layers of the broad

ligament. The small cysts hanging in the neighbourhood of the parovarium are often termed 'supernumerary hydatids of Morgagni.' They are of no clinical import, and vary in number from one to five. Occasionally they rupture, and resemble in miniature the abdominal ostium of the Fallopian tube.

The cysts to which the term parovarian is properly applied arise in the vertical tubes, and lie between the layers of the broad ligament, and, when of moderate size, have the Fallopian tubes lightly stretched over them. In the early stages they are thinly walled, transparent, and contain a clear limpid fluid of specific gravity 1010.

Such cysts are lined with columnar ciliated, simple columnar, or squamous epithelium; in large cysts the epithelium atrophies, from

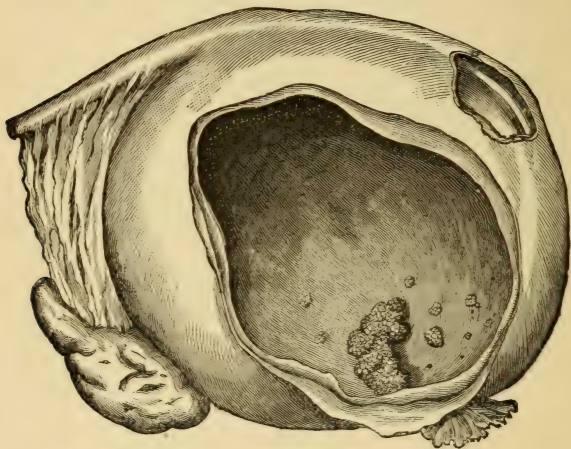


FIG. 209.—A Paroöphoritic Cyst. Its relations to the ovary, tube, and broad ligament are well shown (after Doran).

pressure. When these cysts are immersed in strong alcohol, they quickly lose their transparency; this is due to a flaky deposit from the fluid, known as albumenose. In parovarian and some ovarian cysts it is present in very large proportion.

Parovarian cysts vary greatly in size; in some specimens they are as small as peas; usually they rival a large orange in size; now and then, undoubted parovarian cysts are met with holding several pints of fluid. In these large cysts the walls thicken, lose their transparency, and become very tough. The overlying layers of the broad ligament also become thickened.

In small and moderate-sized parovarian cysts identification is extremely easy, Fig. 208; but in the larger specimens the relation of parts is often disturbed, and the nature of the cysts not easy to

determine. Many such cysts described by the earlier operators as 'ovarian' were 'parovarian.'

In some rarer cases a parovarian cyst is dumb-bell-shaped. When a parovarium is cystic, an incipient cyst will usually be found in the opposite organ.*

The Contents of Ovarian Cysts vary. In the simpler kinds there is a pale, straw-coloured fluid, which is of a specific gravity of 1010—1020, containing little or no albumen, and which is not spontaneously coagulable. 'Ascitic fluids, says Wells, 'never contain more solid matter than the serum of the blood, and the greater number of ovarian fluids have even less; but any serous fluid taken from the abdomen of a woman which, when filtered, leaves after evaporation a dry residue in excess of that which would be found in blood-serum, may be pronounced upon as positively ovarian.' In other ovarian cysts the fluid is thick and gelatinous, not coming readily through the cannula on tapping, and of a colloid nature; this is specially the case in multilocular cysts. Occasionally it is of a grumous character, from the quantity of fatty and caseous matter present. It may contain both pus and blood. Thus both the colour and consistency vary considerably. An important practical point is that tapping appears to increase the density of the fluid in an olygo-cystic tumour.

Chemical Characteristics of the Fluid of Ovarian Cysts.—

1. Ovarian fluid does not spontaneously coagulate.
2. A small quantity of the fluid can be laid aside and examined after twenty-four hours for any shreds or filaments of fibrine; in ascites these filaments are, as a rule, present.
3. Glittering particles of cholesterine are occasionally seen in ovarian fluid—very rarely in ascitic fluid.
4. The dry residue of the fluid from an ovarian cyst, when filtered, should not weigh (C. Méhn) more than 70—80 grammes per kilo-

* The author is indebted to Mr. Bland-Sutton for the preceding summary of the pathology of cysts of the ovary.

gramme. This test hardly leaves any room for doubt.

5. *Paralbumen and Metalbumen*.—Paralbumen is detected by the passage of a stream of carbonic acid gas through the filtered fluid, and the formation of a precipitate. A portion of the fluid is boiled in a test-tube; to the coagulum of albumen which forms, twice the volume of strong acetic acid is added. The coagulum is boiled and shaken. True albumen coagulum is not affected. That of paralbumen or metalbumen either dissolves or forms a transparent, jelly-like mass. The test I have been in the habit of applying for metalbumen is that recommended by Thomas. The fluid is digested with absolute alcohol for three days. The precipitate is filtered off and heated with distilled water. This fluid is again filtered, and the metalbumen precipitated by sulphate of magnesia. But it is not to be thought that in the presence or absence of these albuminous products we have an infallible test of the character of the fluid which is causing abdominal distension. In the case of a multilocular cysto-sarcomatous tumour, removed by me from a girl aged twenty, and exhibited in 1883, at the Academy of Medicine in Ireland, the diagnosis was obscured by the presence of a large quantity of ascitic fluid, which distended the abdomen. It was found on removal of this tumour that a few of the superficial cysts had ruptured, and this explained the ascites, which could not be accounted for before operation, all the viscera being healthy. She had been twice tapped. On drawing off some of the fluid prior to operation, for the purpose of diagnosis, it was found to contain some slight traces of paralbumen, and yet it did not spontaneously coagulate, as ascitic fluid would. A few of Drysdale's granular cells were found in different portions of the fluid examined. The operation proved the fluid to be in greater part ascitic, the few cysts which had burst on the surface of the cystoma not being larger in size than a hen's

egg. *Eischwald* has divided the organic contents of the fluids found in cysts under two heads, and classified them thus :

1. Mucous.
 - Colloid particles and substance.
 - Mucin.
 - Muco-peptone.
2. Albuminous.
 - Albumen.
 - Paralbumen.
 - Metalbumen.
 - Albumino-peptone.

The inorganic *débris* amounts to 8·27 parts in 1,000, and is principally composed of soda and salts of soda and potash. Not the least interesting feature connected with the pathology of ovarian cysts is the form of slow digestion of the solid portions of the cyst through the presence of these ferments, muco-peptone and albumino-peptone. The general emaciation which accompanies the growth of the larger tumours is thus accounted for.

Microscopic Appearances.—With the microscope various elements are found, according to the nature of the cyst, and the inflammatory or degenerative changes which have occurred in it. Thus fat-globules, crystals of cholesterine, pus, blood, and epithelial cells, are frequently present. But the most characteristic cell is that which is associated with Dr. Drysdale's name. This granular cell has no nucleus; the addition of acetic acid makes the granules more apparent and the cell more transparent, but does not bring any nucleus into view, while ether has hardly any effect on it. Not that this cell can be looked on as pathognomonic of an ovarian cyst. It is believed that these granular cells are but the nuclei of cells which have undergone fatty degeneration (Garrigues). But perhaps the most important

light the microscope can throw on the nature of an abdominal tumour is in the diagnosis of malignant ovarian disease.

In a paper read before the Edinburgh Medico-Chirurgical Society, in 1875, Dr. James Foulis drew attention to the 'proliferating masses of epithelium' found in the ascitic fluid surrounding a malignant ovarian tumour and in malignant peritonitis. By the detection of these sprouting cells

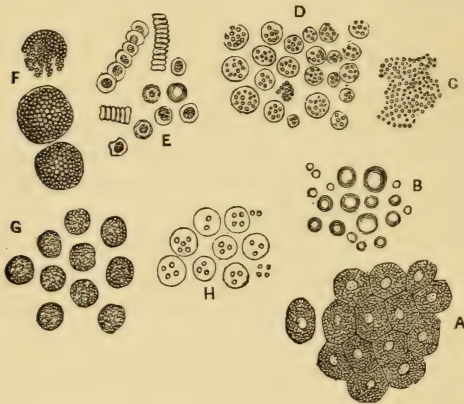


FIG. 210.—Microscopic Appearances of Ovarian Fluid (Drysdales). A, epithelial cells; B, oil-globules; C, granular matter; D, granular cells (Drysdales); E, blood-corpuscles; F, inflammatory globules of Gluge; G, pus-cells, before addition of acetic acid; H, pus-cells, after addition of acetic acid.

he was enabled to diagnose accurately the malignant nature of the tumour. (The reader can refer to two interesting papers on this subject by Dr. Foulis, in the *British Medical Journal* of July 20, 1878, and November 2, 1878.) I quote a few sentences from the first of these papers: 'Malignant ovarian tumours are generally surrounded by ascitic fluid. The ascitic fluid should in all cases be examined by the microscope. If in such ascitic fluid we find a large number

of masses of sprouting, vigorously growing cells, some of which masses may be seen by the naked eye, we may safely conclude that the peritoneum is the seat of a most serious affection, and that there are numerous adhesions between the tumour and the neighbouring parts, which will prevent its complete removal by ovariectomy. If these masses be found in *bloody* ascitic fluid, we may conclude

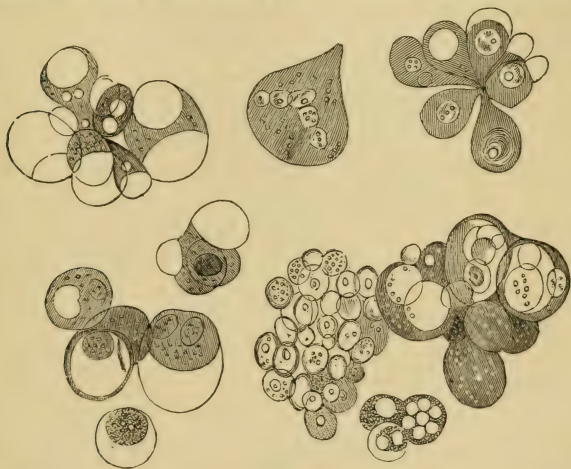


FIG. 211.—Proliferating Malignant Cells found in Ovarian Fluid (Sir Spencer Wells).

that there are vascular villous growths on the peritoneum ; and if, in addition, the glands in the groin or elsewhere be enlarged, the tumour and peritoneal growths are certainly carcinomatous.' He specially refers to the importance of finding these sprouting masses in the surrounding fluid, as, if they are still confined to the cyst-fluid, the growth may be removed without risk of future peritoneal infection. Fig. 212 (borrowed from Hart and Barbour) shows some of these sprouting cell-groups.

Causation.—We might assume that during the period of life when there is active ovarian excitement and frequently recurring ovarian congestion a woman would be more liable to ovarian disease. And so it is found in practice that by far the larger number of cases occur from twenty to forty. Thus, of Wells's 1,000 cases operated on from 1858 to 1880, 531 were from 20 to 40 years of age, and 228 from



FIG. 212.—Foulis's Malignant Cell-groups (borrowed from Hart and Barbour). The cluster of cells in the left-hand corner were found in ascitic fluid, surrounding a large cysto-sarcoma of the ovary; the remaining cell-groups were found in the deposit from ascitic fluid surrounding a large, soft, malignant tumour of ovary. (Drawn with camera lucida under a power of 350 diameters; No. 3 ocular.)

40 to 50. There does not appear to be any specific cause to which we can attribute the development of ovarian tumours. But we may assume that all of those influences which tend to produce and maintain ovarian congestion are likely to act as predisposing causes of the disease.

Duration and Termination.—It would appear that from one to three years is the average duration of the disease

when it is not surgically interfered with. But it is the experience of most men who have seen many cases of ovarian disease that instances every now and then occur in which the disease has lasted, without any interference, much longer than this.

Spontaneous Cure.—This may possibly occur in either of the following ways :

1. Discharge of cyst into the peritoneum and absorption.
2. Twisting of the pedicle, and gradual strangulation of its vessels.

Suppuration of the Cyst Wall.—This often leads to peritonitis, hectic, and death. But even under this most unfavourable of circumstances (suppuration) the operation of ovariectomy has been performed successfully.

Twisting of the Pedicle may lead to fatal peritonitis, hæmorrhage, or gangrene and septicæmia.

Discharge of the Contents of the Cyst, or of blood from the vessels of the cyst-wall, may cause fatal hæmorrhage into the interior of the cyst, and death.*

Death may result from Exhaustion, consequent upon the long-continued drain on the system, repeated attacks of peritonitis, the persistent interference with the functions of the other vital organs, such as the lungs, the pelvic viscera, the kidneys, and the bowel.

(For further particulars of the diagnosis of tubo-ovarian, dermoid, and sarcomatous cysts, see such works as those of Wells, Thomas, Tait.)

Intra-ligamentary Cysts.—Intra-ligamentary cysts have been described by Goodell and Doran. These are encapsuled in the broad ligament, are unilocular or multilocular, and contain papillary ingrowths. Doran surmises that they are due to stray foetal relics in the hilum of the kidney rather than degeneration of supplemental ovarian tissue. Adhering to the bladder and uterus underneath the peritoneal covering of these organs or the ureters, the removal of these cysts is attended

* Sudden death may follow from the bleeding of a large vein into the cyst cavity or peritoneal cavity.

with great danger, not alone from the inherent difficulties of the operation itself, but also from the escape of papillomatous material into the peritoneal cavity (*vide* W. and W. C. Goodell on Diseases of the Ovaries and Tubes, 'Annual of Universal Medical Sciences, 1888').

DIAGNOSIS OF OVARIAN CYSTS.

That practitioner will have the least chance of committing an error in the diagnosis of an abdominal tumour who commences his examination of the case recollecting the many possible and likely sources of error which he has to avoid. I have been in the habit of directing the attention of my class to the carefully collated list of forty-three diseased conditions which Dr. Gaillard Thomas* shows may be mistaken for ovarian cystoma. It must also be remembered that it is not in the well-marked case of ovarian cystic disease that the careful surgeon is apt to fall into error. Rather is it when he is confronted by a case in which some obscure and unfamiliar signs are present, and when the history of the growth of the tumour is not clear, or that evident complications exist, such, for example, as pregnancy, great obesity, ascites, cystic degeneration of any of the abdominal viscera. But, independently of the nature of the tumour, there are other points which he has to decide, and which are of vital moment to the woman. Such are, its benign or malignant character, the presence of adhesions, the amount of solid matter present and its position, the general constitutional state of the woman, and the evidence of any grave affection of the lungs, heart, kidney, liver, spleen, bowel, or uterus, which may complicate the operation of ovariectomy, and contra-indicate its performance. Overweening self-confidence and ignorant assurance will nowhere more startlingly meet the rebuff they merit than in the case of over-confident diagnosis of abdominal tumours.

* 'Diseases of Women,' by Gaillard Thomas, sixth edition.

It may be well to enumerate those conditions* which we are most likely to confound with ovarian cystic disease :

*Great obesity.

*Hysterical tympanites and phantom tumour (pseudocyesis).

*Fæcal tumour.

Dilatation of the stomach.†

Distended bladder.

Hæmatometra.

Physometra.

Hydro-salpinx.

*Ascites.

Encysted dropsy.

*Hæmatocele.

Cystic disease of the parovarium.

* " " kidney.

Cystic disease of the spleen.

* " " liver.

 " " uterus.

*Uterine fibroma.

Enlargements of the liver, spleen, and kidney.

*Disease of the abdominal glands.

*Omental tumour.

Displacements of liver and spleen.

*Pregnancy.

Extra-uterine foetation.

Hydramnios.‡

* Those conditions marked so (*), I have myself known mistaken for ovarian disease.

† Some years since a girl was sent to me by Dr. Hill, of Fermoy, who rightly diagnosed enormous gastric distension. Before verifying his diagnosis I placed the girl twice under chloroform, so great was the distension and accumulation of liquid and gas in the stomach. She was under the care of Dr. Townsend for some months in hospital. She went out with the swelling greatly reduced, and I believe now enjoys fair health.

‡ Several years since, with the late Dr. Gregg, of Cork, I went pre-

Death of foetus.

Pelvic abscess.

Hydatids.

*Accumulation of pus or serum in the peritoneal cavity.

*Malignant disease of the uterus.

„ „ „ peritoneum.

Extra-peritoneal cysts (Tait).

EXAMINATION OF A SUSPECTED CASE OF OVARIAN TUMOUR.

To avoid repetition I must refer the reader to the chapters on 'The Examination of a Case,' for the steps which must be followed in completing a diagnosis, and the appliances necessary to conduct such examination. I shall here classify the positive and negative signs on which we rely in arriving at a diagnosis. Before doing so it may be well to refer to the most important facts in the history of an ovarian growth, which assist in diagnosis.

History and Early Symptoms.—The tumour has commenced at one side, and has at first caused but little distress. This, however, is by no means an absolute rule. There may be dysmenorrhœa, pelvic and reflex pains, and while the tumour is still pelvic, irritability of the bladder and rectum, or hæmorrhoids may form from pressure; all these early symptoms are aggravated if the cyst-wall forms adhesions, and if the tumour be prevented from rising into the abdominal cavity. The general health is at first but little interfered with. There is no œdema of

pared to tap a case in which most urgent symptoms of dyspnœa and lung complication threatened life, from what we both decided, after most careful examination, was an enormous collection of ascitic fluid. There was albumen in the urine, and great œdema of the lower extremities. Before finally puncturing the abdominal wall, I passed the uterine sound, and discovered the enlarged uterus. The patient was delivered within twenty-four hours of a healthy child, who is still living.

the upper or lower extremities. There is not much to rely on in regard to the menstrual periods. There may be no interruption of menstruation; there is occasionally even menorrhagia; or, on the other hand, the flow may become



FIG. 213.—Ovarian Tumour compressing Thorax (after Sir Spencer Wells).

in the first instance scanty, and finally cease. The breasts may slightly enlarge, and the characteristic appearances of early pregnancy (with the exception of the secretion of milk*) may be present. Obscure peritoneal pains are some-

* Prolonged lactation has to be remembered. I have at present a lady under my care who miscarried in 1884. The breasts still secrete milk, and the flow is increased at the menstrual advent.

times complained of—the result of distension or stretching of the peritoneum, or twisting of the pedicle. Nausea and vomiting occasionally accompany such pains.

After the Tumour rises above the Pelvis.—The growth may still be distinctly asymmetrical, but gradually it assumes a central position. There is not any regularity in the rate of growth. Some tumours may increase very slowly, or remain quiescent for a time; others develop with extraordinary rapidity, each week producing a marked change

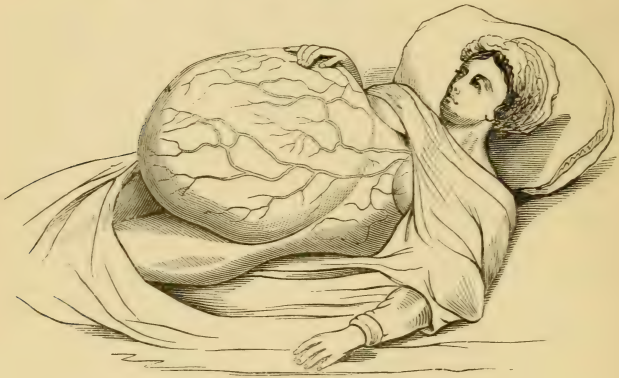


FIG. 214.—Ovarian Tumour (Bright).

in the shape and size of the abdomen. The growth may now be attended with abdominal tenderness in parts, or peritoneal pain, while the pelvic symptoms are relieved. The countenance gradually begins to change. Emaciation, anxiety, suffering, confinement, begin to tell in the expression of the face. As Wells graphically describes the ‘*facies ovariana*’ of a case figured in his recent work: ‘The emaciation, the prominent, almost uncovered bones, the expression of anxiety and suffering, the furrowed forehead, the sunken eyes, the open, sharply-defined nostrils, the long,

compressed lips, the depressed angles of the mouth, and the deep wrinkles curving round these angles, form a face which is strikingly characteristic.' Should relief not come by operative means, the abdominal distension increases, the superficial veins may become enlarged, lineæ albicantes appear, constitutional symptoms, both thoracic and abdominal, are aggravated by the increasing pressure, and the patient finally sinks from the combined effects of emaciation and organic disease induced in the heart, lungs, stomach, or kidneys.

PHYSICAL SIGNS, POSITIVE AND NEGATIVE, OF OVARIAN TUMOURS.

Positive Signs.

A tumour at first noticed in either inguinal region, gradually becoming central; the greatest circumferential measurement being below umbilicus; lateral measurement in the early stages increased from the middle line to the vertebral column, or from the anterior superior spine to the umbilicus of the side affected.

Outline of the retained tumour can be defined.

Abdominal integument tense, frequently thinned—otherwise not abnormal.

Later stages: distension of abdominal veins, and lineæ albicantes seen.

Fluctuation limited to the dull area. Wave more distinct, but not so superficial as the ascitic wave.

Dulness on percussion central; not much affected by change of posture; resonance in the flanks from the intestinal displacement.

Uterus frequently displaced behind the cyst; on vaginal examination the uterus is frequently found drawn up from the examining finger; the cervix may be shortened.

Aortic pulsations (Atlee) are transmitted through the tumour.

The 'facies ovariana' is present.

The fluid drawn by aspiration or paracentesis is usually of an amber colour, but varies in colour and consistence; is viscid and sticky, of specific gravity 1015 to 1030; contains paralbumen and metalbumen; when examined under the microscope various forms of epithelial cells are seen, mixed with cholesterine particles,

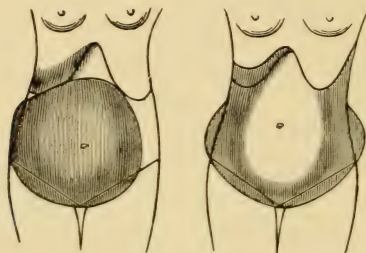


FIG. 215.—Dull Areas in Ovarian Tumour and Ascites (Barnes).*

and perhaps oil-globules or blood-cells. The characteristic cell described by Drysdale as pathognomonic is a non-nucleated granular cell on which ether has no effect, and acetic acid only renders the granules more distinct. Exploratory incision (as the first step of ovariectomy) detects the bluish-white, or glistening and smooth wall of the cyst.

Negative Signs.

The general health does not rapidly deteriorate.

The catamenia are not generally absent, though they may be scanty.

* It must be remembered that the presence of gas in the cyst cavity may lead the practitioner astray by the resonant note it gives to percussion.

There is seldom menorrhagia.

There is no cardiac, renal, or hepatic disease to explain the dropsy.

Oedema of the extremities is not present (until very late in the disease).

The tumour is not central from the first; it does not proportionately increase from month to month, as in the case of the pregnant uterus; it is not hard and resisting.

The umbilicus is not prominent, bulged out, watery-looking, or thinned.

The integument is not materially altered in appearance or oedematous; the distension of the superficial veins, as a rule, comes on late in the disease.

The cachexia of malignant disease, and of organic disease in the viscera, or of malignant ascites, is absent.

The most important signs of pregnancy are absent, such as :

Milk in the breasts. (Not necessarily absent. An ovarian tumour may develop during prolonged lactation);

The foetal pulsation;

Uterine contractions;

Ballottement. (Not necessarily absent. A solid tumour may be contained in an enlarged cyst, and give the sense of ballottement on practising this test.)

The os uteri is not soft and patulous.

The uterine cavity is not (generally) enlarged.

The uterus does not move with the tumour, nor is the uterus found to be continuous with it (recto-vaginal and utero-abdominal methods).

There is no history of rigors, hectic, great pain, and nightly exacerbation of temperature.

The tumour does not lessen or disappear on the administration of chloroform, nor can any considerable depression be made in it under the influence of the anæsthetic.

It does not diminish perceptibly when the bladder is emptied.

There is no inordinate obesity in other parts of the body. The fluid is not of very low specific gravity; it is not pure serum; it does not spontaneously coagulate; it does not, when kept, deposit filamentous particles of fibrine. The characteristic fibre cell of Atlee is present.

Paracentesis does not cure the disease.

Exploratory incision does not expose a dark-coloured and vascular tumour.

DIAGNOSIS OF ADHESIONS.

After his great experience in ovariectomy, Sir Spencer Wells remarks: 'Practically, therefore, in deciding whether ovariectomy should be recommended or not, adhesions to the abdominal wall may be almost disregarded.' Though this may be so in the hands of such a skilled operator as this writer, it is widely different with those about to operate for the first time, or who can only count their one ovariectomy for every twenty of theirs. How much more so must the presence of adhesions to the pelvic viscera and intestines influence the chances of a successful operation in the case of a young operator! 'Adhesions low down in the pelvis,' says the same author, 'are, on the contrary, of great importance. The difficulty is to separate them without serious injury to the rectum, or bladder, or the ureters, or to large bloodvessels, or to nerves. . . . When deep-seated and very intimate, the dissection necessary is out of the question in the living patient, and gives no small trouble

in the dead.' To detect adhesions to the abdominal wall the patient is placed on her back, with the knees raised, opposite a good light, and the abdomen must be entirely uncovered. The proofs that Sir Spencer Wells relies on that the cyst is free of adhesions to the abdominal parietes are as follows: (*a*) Movement of the cyst-wall visible with the acts of respiration (percussion enables us to limit the superior border of the cyst, and prevents our mistaking it for the transverse colon). (*b*) By percussion the dull sound will descend in inspiration, rising again in expiration. (*c*) With the hands placed flatly on the abdominal wall, no crepitus can be felt, which is present if any adhesive cords of lymph stretch from the cyst to the abdominal wall; audible crepitus is heard when the lymph-surfaces are recent (the fact that omentum may intervene between the cyst and the abdominal wall is not to be forgotten; its proximity to intestine, and the consequent resonance on percussion, and the softer and doughy feel, help to distinguish it). (*d*) 'The recumbent patient is directed to try and sit up without assisting herself by her hands or elbows. This effort puts the recti on the stretch, and if a tense ovarian cyst is free from adhesion, it falls backwards and to the sides, while the muscles form a projecting ridge in the centre of the abdomen.' Only when the adherent cyst* is 'flaccid or partially empty' is this appearance seen. (*e*) The umbilicus moves with an adherent cyst. (*f*) By placing the woman in the knee-elbow position, and examining the tumour through the vagina, if there are pelvic adhesions it does not yield to digital pressure, and the uterus may be pushed out of position or fixed. A portion of an ovarian cyst may occupy the pelvis and become fixed there, and still no adhesions exist. (*g*) If there have been recurrent attacks of peritonitis, with severe pain and uterine

* Or in the case of a small cyst.

cramp, we may submit that there are adhesions, or some twisting of the pedicle.

Inflammation and suppuration of the interior of the tumour may be suspected if there are rigors, rapid pulse, diarrhœa, hectic and elevation of temperature. Such inflammatory action may lead to rupture of the cyst and discharge of its contents into the abdominal cavity, or, as the consequence of adhesions, the cyst may empty itself through a fistulous opening through the abdominal wall, or discharge itself by the vagina, bladder, uterus, or rectum. Death may occur ultimately from pyæmia or exhaustion.

Internal hæmorrhage into the interior of the cyst will be suspected if symptoms of intense shock set in suddenly with collapse.

I have thus very briefly summarized the most important and reliable signs and symptoms by means of which we are enabled to say: 1st, that the growth is ovarian; 2nd, that it is unilocular or multilocular; 3rd, that it is not malignant; 4th, that it is not a cyst of the parovarium; 5th, that there are or are not adhesions; 6th, that inflammatory changes have not occurred; 7th, that internal hæmorrhage is not going on into the cyst.

UNILOCULAR CYST.	MULTILOCULAR CYST.	PAROVARIAN CYST.	MALIGNANT CYST.
Surface smooth.	Surface irregular and lobular.	Occurs in very young persons.	Occurs more frequently after forty.
Fluctuation free in all directions.	Fluctuation circumscribed and interrupted.	Is comparatively rare.	Nodular and irregular.
Growth not so rapid.	Growth rapid.		Grows rapidly.
Contains the usual ovarian fluid.	Contains often blood corpuscles, and the fluid is denser and perhaps discoloured.	Fluctuation very superficial, and walls of cyst very thin.	Solid contents, or is solid.
Circumferential measurement below umbilicus 35—45 inches (Peaslee).	Circumferential measurement below umbilicus 55—78 inches (Peaslee).		
Adhesions not common.	Adhesions common.	Does not affect the general health much.	Glands involved.
General health not so rapidly involved.	Rapidly fails.		Emaciation and cachexia come on quickly.
			Pain is present, especially at night.
			Ascitic fluid surrounds the tumour, and on examination the 'proliferating cell' of Foulis is detected in the fluid examined.
If tapped the tumour is emptied, and quickly refills.	On tapping we do not empty the tumour.	Does not usually refill after tapping.	

It is seldom that the careful diagnostician, proceeding step by step in the examination of a case, will fall into error. Keeping clearly in his mind the possible pitfalls always open for hasty conclusions, he must check one test by the application of another, and deliberately balance probabilities. Should he be in doubt between any two decisions, he will carefully apply all the facts of the case to each separately, comparing critically the weight of evidence which inclines him one way or other. The practitioner has to remember that such conditions as pregnancy, encysted dropsy, ascites, fibro-cystic disease of the uterus, extra-uterine foetation, hydramnios, have deceived the most experienced living authorities. Therefore he will hurriedly express no opinion either to patient or friends; nor, indeed, will he commit himself, in case of doubt, to any final opinion, without a full examination and consultation. The case is one of 'abdominal' or 'pelvic' tumour until such time as its nature is clearly defined. Should any uncertainty remain, it is better to leave the question an open one. This is the more necessary, as in many instances he may not have the means or opportunity of applying such crucial tests as aspiration, paracentesis, the microscope, and chemical analysis. And one caution more I may add here. Even when the fact of the existence of an ovarian cyst is decided, we have to recollect that complications may exist, such as pregnancy, ascites, inflammatory conditions of the pelvic, or general peritoneum, malignant disease, uterine tumour, cysts of the abdominal viscera, etc. There may be two ovarian tumours; one may escape detection. (Should the two ovaries be involved, there may be a double tumour and a well-marked sulcus between.) Before we finally express any decided opinion, it is well to exclude the possibility of any complication, as, through it, the case afterwards may assume much more serious proportions, and there may

be the reflection on the part of the patient that it escaped detection.

Treatment.

This practically resolves itself into—

General.

Palliative.

Removal of the cyst.

It would be sheer waste of time to discuss the general treatment of ovarian tumours by drugs. We may maintain the general health and support the patient's strength by suitable tonics and the administration of proper nourishment, while we see that sufficient time is spent in the open air, and the mind is as far as possible prevented from dwelling on the malady and the chances of recovery. The bowels generally require attention, and the bladder may have to be relieved in consequence of pressure; any secondary changes in the cyst, or such an accident as hæmorrhage, must be dealt with as they occur. The one treatment for ovarian tumour, with rare exceptions, is ovariectomy. I have already referred to the operation of paracentesis abdominis and the methods of performing it, and vaginal paracentesis.

On the disputed question of tapping, Sir Spencer Wells,* from the results of 265 cases in which tapping was practised, draws the conclusion: 'the mortality of ovariectomy is but little affected by tapping;' 'in some of the patients who have been tapped most frequently, there were no adhesions, while there were firm adhesions in some who had never been tapped.' He distinctly places before us these propositions:

'1. That in cases of simple ovarian, or extra-ovarian

* There is no doubt that the general feeling of gynecologists is strongly against tapping. 'The golden rule,' says one writer (Goodell), 'is not to tap.'

cysts, it is right to try the effect of one tapping before advising a patient to undergo a more serious risk. But in compound or multilocular cysts, the third proposition holds good.

‘2. That one or many tapplings do not increase considerably the mortality of ovariectomy.

‘3. That tapping may sometimes be a useful prelude to ovariectomy, either as a means of gaining time for a patient’s general health to recover, clearing the urine of its load of albumen, with which it is sometimes charged under the mere influence of pressure, or of lessening shock by relieving her of the fluid a few hours or days before removing the solid portion of an ovarian cyst; and

‘4. That when the syphon-trocar (Spencer Wells’s) is carefully used, in such a manner as to prevent the escape of ovarian fluid into the peritoneal cavity, and the entrance of air or of putrefactive material into the cyst, the danger of tapping is extremely small.’

Tapping through the rectum is a step we need not consider; and all other means, such as injection of iodine, and the formation of a permanent opening in the cyst, have been generally abandoned. Sir Spencer Wells still recommends the injection of iodine when, after tapping by the abdominal wall or elsewhere, inflammation has occurred, and the patient is suffering from the decomposing contents of the cyst. It is well to deodorize the fluid which escapes. This lessens the risk of pyæmia and septicæmia. A solution of one part of iodine and two of sulphurous acid to twenty of water, or of one part of sulphurous acid to eight of tepid water, is used. This is injected night and morning.

With regard to the operation of ovariectomy,* I shall only here remark that the surgeon who is not familiar with the accidents and complications to be met with in the removal

* See Chapter on Ovariectomy.

of large abdominal tumours, and whose manipulative skill is not seconded by the experience gained, both in seeing ovariectomy performed, and assisting at the operation, assumes a grave responsibility in operating for the first time without this experience. There can be no doubt that were the entire number of deaths resulting from ovariectomy published annually, the death-rate would be considerably increased, and the mortality from this operation would appear much larger than that which is quoted as following the practice of the most skilful of operators.

Certainly in no major operation of surgery is greater coolness, nerve, readiness of resource, decision, and frequently manipulative skill required than in the careful removal of *complicated* ovarian cysts. The operator who feels that he has *in himself* these qualities may have no hesitation in operating. *He who does not, has no justification in attempting an operation frequently requiring all of them.*

Sir Spencer Wells's observations on the expediency of operating are worthy the attention of all surgeons :

‘ With the experience of the nine years which have elapsed since the publication of my edition of 1872, I have become more and more disposed to advise the removal of an ovarian tumour as soon as its nature and connections can be clearly ascertained, and it is beginning in any way physically or mentally to do harm, since the risk of the operation under such circumstances is certainly less, and the possible evils of delay are eluded. Where, however, while the development continues, the symptoms follow their usual course, and the distress of the patient forces her to demand some kind of relief, there is either reluctance or refusal to face the liabilities of excision, or family considerations impose the necessity of delay, the size, nature, and connections of the tumour must guide us in the selection of one or other of the minor methods of palliative surgical treatment, which,

though they seldom lead to a cure, have the advantage of enabling us to alleviate the most distressing symptoms, and to wait for an opportunity to try some of the greater expedients which have been from time to time adopted for the obliteration of these cysts, or to carry out the last resource of ovariectomy.'

In the 1885 edition of his work on abdominal tumours Sir Spencer Wells says :

'The probable result of ovariectomy can be estimated with far greater accuracy by a knowledge of the general condition of the patient than by the size and condition of the tumour. In other words, a large tumour, extensively adherent in a patient whose heart and lungs and digestive and eliminative organs are healthy, and whose mind is well regulated, may be removed with a far greater probability of success than a small unattached cyst from a patient who is anæmic or leukæmic, whose heart is feeble, whose assimilation and elimination are imperfect, or whose mind is too readily acted upon by either exciting or depressing causes. I believe this to be the explanation of the facts which have led some superficial observers to assert that the more advanced the disease, the greater, and the earlier the stage of the disease, the less, is the probability of recovery. I am convinced that this reasoning is based on the observation of a few exceptional cases where small unattached tumours have been removed with a fatal result from unhealthy or infected persons, or where large attached tumours have been successfully removed from persons who have otherwise been constitutionally sound. Small unattached tumours in strong healthy persons have by no means given the best results. It is possible to operate too early as well as too late—to place a patient's life in peril by operation before it is endangered by disease—just as it is possible, on the other hand, to delay operation until the powers of life

are so exhausted that recovery after a severe operation is impossible. A strong man in full health, with a limb crushed by a railway accident or shattered by a bullet, bears amputation worse than another man who, on account of diseased knee-joint, has been confined to his room for weeks or months. So a woman who has become accustomed to the confinement of a sick-room, has lost flesh, and has been brought by her suffering to dread the operation less than the disease, bears the removal of an ovarian tumour, even though large and adherent, better than one whose whole course of life is suddenly changed from the performance of ordinary active duties to the enforced quiet and confinement in bed which necessarily follow ovariectomy.'

NOTE.—There can be no doubt that the growing opinion of most ovariectomists is one in favour of early operation. Tait and Bantock especially advocate early removal of the tumour. In an important paper read by Dr. Bedford Fenwick at the British Gynecological Society, the subject of 'Intra-abdominal Tumour as a Cause of Cardiac Degeneration' was discussed. Fatty degeneration of the heart was noted in 18 cases, 14 of which were ovarian, 1 omental, and 3 fibrocysts of the uterus. Dr. Fenwick attributed this change to pressure on the diaphragm by the cyst, impeded pulmonic circulation, and impairment of the general health and nutrition. It seems to me there is little use in delaying an inevitable step until such integral changes in the tumour and in the relation of its walls to the adjacent viscera, not to speak of general systemic effects, have occurred as to render the operation both more difficult and more fatal.

CHAPTER XXIV.

OVARIOTOMY BY THE INTRAPERITONEAL METHOD.

ON the previous day castor-oil should be given ; the woman may have a warm bath and a dose of bromide of potassium or opium at night.

On the morning of the operation an enema is administered, and the patient should only have the lightest liquid food six hours before any anæsthetic is given.

The surgeon had better himself prepare a list of all appliances and instruments required, and check it off some time before the operation begins with his assistant.

The room should be well ventilated, of a proper temperature (60°) ; there should be good light, and every precaution taken as regards disinfection and purity of the air beforehand. A spray of carbolic steam may be allowed to play in the room for a short time before operation.

General appliances required in the room :

Spray-producer (if the operator determine to use it) ;

Matthew's double spray-producer is the best I know of. I have several times operated over twelve feet away from this engine under a fine cloud of spray.

Lint.

Adhesive plaster.

Bandages for the hands and legs.

Straps for the knees.

Waterproof sheet, with an oval adhesive opening eight inches by six.

Some soft flannel bandages.

Absorbent antiseptic wool.

Carbolic lotion and carbolic acid.

Some carbolized oil.

Some safety-pins.

A blanket for lower extremities.

Bottles for hot water.

A few small buckets.

A large can for hot water.

Twelve sponges (smaller—previously counted).

One large flat sponge.

Catheter.

Iodoform or iodol and iodoform gauze.

Instruments which should be ready, and may be required :

A few scalpels.

A curved probe-pointed bistoury.

Some ovariectomy hooks.

Tenacula.

A grooved director.

Dissecting and dressing forceps.

Scissors, straight and curved.

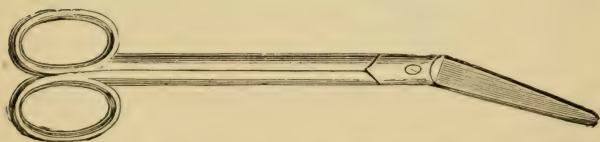


FIG. 216.—Bent or Flat Scissors.

Twelve Wells' torsion forceps (previously counted).

Aneurismal and perineal needles.

Ovariectomy cautery clamp.

Paquelin's cautery.

Ovariectomy clamp for pedicle.

Needle-holder.



FIG. 217.—Wells' Torsion Forceps.

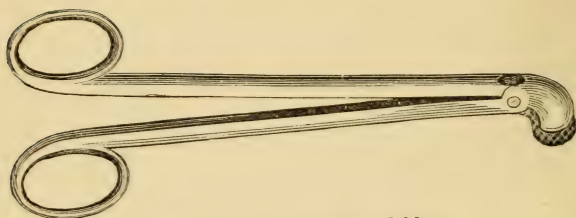


FIG. 218.—Wells' Needle-Holder.



FIG. 219.—Adams' Double Peritoneal Hook.

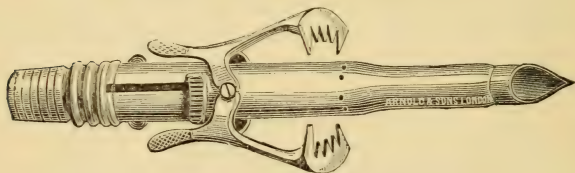


FIG. 220.—Wells' Trocar.*

Spatulæ.

Spencer Wells' ovariectomy trocar.

Smaller trocar.

Some pressure (clamp) forceps.

* See (p. 404) Tait's syphon trocar.

Vulsella.

Ecraseur.

Several straight needles threaded, two on each suture of silkworm-gut.

Some curved needles threaded with silkworm-gut.

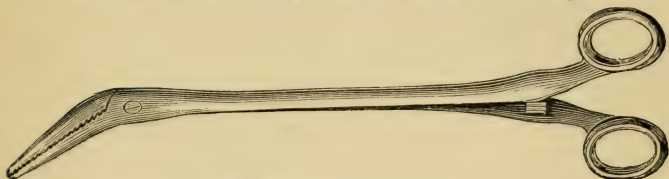


FIG. 221.—Cyst Forceps.



FIG. 222.—Thornton's Torsion Forceps.

Some needles threaded with ligature silk.

One long blunt needle for pedicle.

Some silver wire and wire-twister.

Glass drainage-tube.

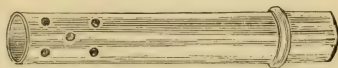


FIG. 223.—Keith's Drainage-Tube.

Also :

Silkworm-gut.

Ovariectomy ligature silk, different sizes of, on asepti-
cised reels.

Drainage tubing.

Perchloride of iron.

Drinking-cup, spoon, brandy

At least three assistants ; also a trained nurse, and her
assistant. *

All preparations are concealed from the patient.

The nurse ought to see to the thorough cleansing of the abdomen the night before, and if it be covered with hair this should be removed. The abdomen should be washed again the morning of the operation, a little ether being used to sponge the skin. The woman should wear a loose but warm dressing-gown, under which is a flannel jacket, and she should have on warm woollen stockings. As few persons as possible should be in the room in which an ovariectomy is performed. It is the safety of the patient rather than the curiosity of bystanders which must be our first consideration. Those who operate for the first time should have none in the room, save those required to assist, or the staff of the hospital.

Assistants and Nurses.—The principal assistant should stand at the opposite side of the table to the operator; he may have to assist in protection of the viscera, use pressure forceps, help in ligaturing or during the management of adhesions, and in the use of sponges. Another assistant should be given entire charge of sponges, which are carefully counted beforehand, and *never torn*. The spray, if it be used during operation, must be in separate charge. Another assistant (or more than one) may hand and take instruments. All the necessary instruments should be placed so as to be within ready reach of the operator. The anæsthetist should attend solely to the anæsthetic, and the best anæsthetic I believe to be methylene, and the best means of administration a Junker's inhaler. There is less chance of sickness, and, as Sir Spencer Wells says, 'the patient gains all the advantage of complete anæsthesia with fewer drawbacks than by the use of any other anæsthetic I know of.'*

* See pp. 53-56 on Anæsthetics.

The Operation.—We may thus summarize in detail the steps of the operation :

1. The abdominal incision.
2. Arrest of hæmorrhage therefrom.
3. Opening of the peritoneum.
4. Exposure of the cyst and determining of adhesions.
5. Use of the trocar and evacuation of the cyst contents.
6. Drawing out the cyst-wall and freeing it of other adhesions if they exist.
7. Arrest of bleeding.
8. Securing the pedicle.
9. Peritoneal toilette.
10. Closure of the wound.
11. Dressing of the wound.
12. After-treatment.

The operator, standing at the right side of the patient, makes a clean cut from four to six inches in length through the linea alba, in the middle line, passing through

integument,
subcutaneous tissue and fat,
linea alba,
fascia transversalis and fat.

He keeps right in the middle line, avoiding the rectus sheath. If the operator does open the sheath of the rectus, he must pass a grooved director in towards the middle line to guide him to the linea alba. Wells' pressure forceps are now applied to the bleeding points, and all hæmorrhage is arrested by them or ligature. The peritoneum is next hooked up on a double sharp peritoneal hook, and it is opened with a scalpel laid horizontally beneath the hook. If fluid be in the peritoneal cavity, the patient is turned a little on the side, and the fluid is allowed to run through an extemporized spout of the waterproof sheeting into

a bucket at the side of the table. The cyst being now exposed, a Wells' trocar is taken in the right hand of the operator, and with it the cyst is pierced, and the fluid

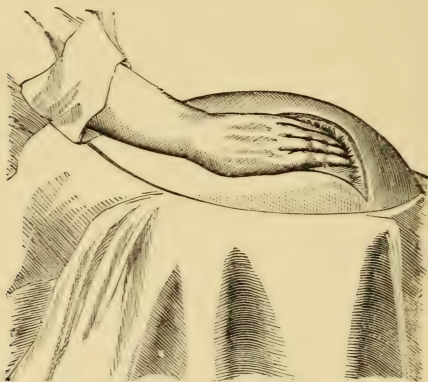


FIG. 224.—Examining Cyst-Wall for Adhesions (Sir Spencer Wells).

permitted to run through a tube into a side bucket. The sliding cannula or shield, regulated by a thumb-piece and bayonet-joint, can be pushed forward so as to protect the

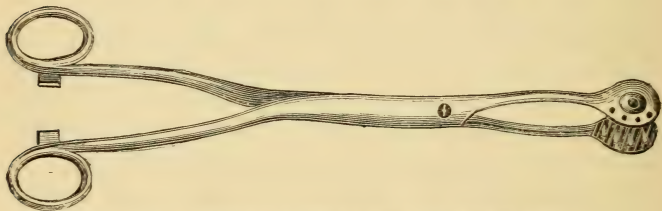


FIG. 225.—Nélaton's Forceps for seizing Wall of Cyst.

point of the trocar. During the emptying of the cyst, any adhesions which are exposed must be separated by a sponge, which will be found most convenient for the purpose, and

any bleeding vessels are seized and quickly tied with aseptic silk. Some may be seized with Wells' forceps and twisted. If the cyst is multilocular, the trocar can be used

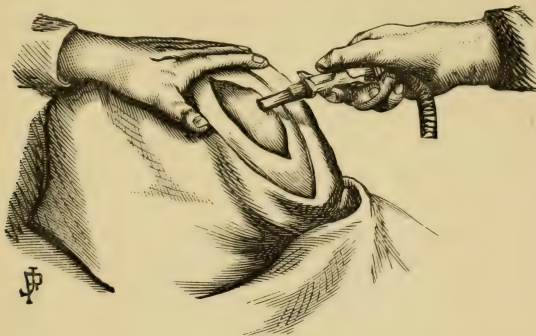


FIG. 226.—Insertion of Trocar into Cyst (Sir Spencer Wells).

to empty two or more cysts without removal of the instrument, by plunging it into each separately through the

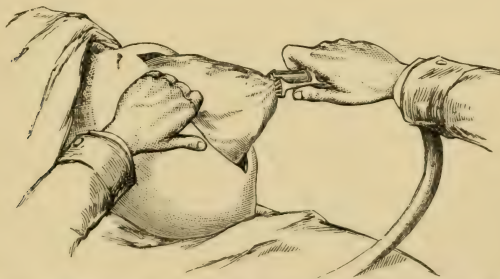


FIG. 227.—Drawing the Cyst out of Incision (Sir Spencer Wells).

septum separating the emptied from the full cyst. The cyst having been partially emptied, the spring teeth are made to grasp firmly the wall of the cyst, and thus the tumour

is carefully drawn through the abdominal opening, any remaining adhesions being freed as this is done. The assistant standing opposite the operator slips his right-hand middle finger inside the abdominal wound, including the entire structures divided, and he thus hooks the abdominal wall forwards, securing both sides of the wound with the thumb and forefinger of the same hand. His left hand is thus free to keep pressure on either side if necessary. The large flat sponge is now carefully slipped in over the intestines to protect these and prevent prolapse. The importance of thus preventing prolapse of the viscera must not be lost sight of. Another assistant supports the tumour as it is drawn out, and prevents dragging or

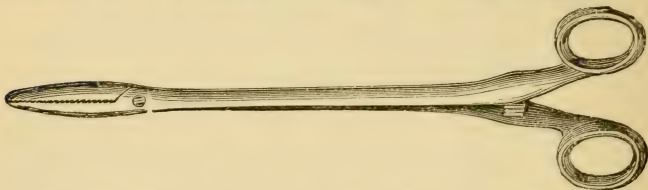


FIG. 228.—Forceps for securing Short Pedicle before Ligature.

traction, receiving the emptied cyst in a basin. The pedicle is now transfixed with a long blunt-pointed needle carrying a double silk ovariectomy ligature. This is cut and made to interlace in a figure-of-eight fashion, each half of the pedicle being thus safely secured with reef-knots. With pressure forceps the pedicle is now held below the ligature, and the cyst is cut off at a sufficient distance from the ligature not to run any risk of interference with it, yet leaving sufficient of the pedicle to examine its surface carefully before it is dropped into the pelvic cavity. Mr. Thornton stitches the raw end of the pedicle to the broad ligament, to prevent its adhering to or constricting the intestine, and Bantock catches it up in the lowest

stitch in closing the abdominal wound. The tightness with which the pedicle is tied and the exact nature of the ligature must occasionally depend on the character of the pedicle and its vascularity. When the cyst is thus removed, the other ovary should be carefully examined, and, if it is diseased, should be taken away. To deal dexterously with adhesions, especially those found in the pelvis, is a matter of experience and manipulative skill. Some are easily separated by the fingers and sponge. Others require ligaturing and subsequent division. Some may demand

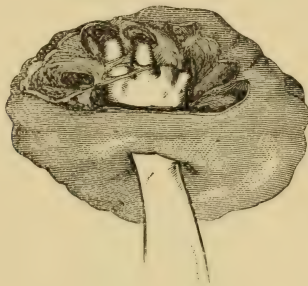


FIG. 229.—Grasping solid Trabecular Tumour (Sir Spencer Wells).

division with Paquelin's cautery. To see adhesions in the pelvic cavity the use of a large reflecting mirror is recommended by some.

THE PERITONEAL TOILET.—This is just the portion of the operation which an inexperienced operator is apt to get through hurriedly, and it is also the part requiring both patience and care. When the pedicle is dropped back, the peritoneum must be carefully dried with warm sponges, and all blood and serum spunged out. The abdominal cavity cannot be left too clear of any fluid or clots. On this depends, in a great measure, the success of the operation. If

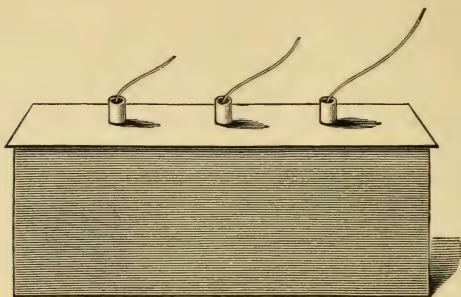


FIG. 230.—Macfarlane's Reel-holder, with reels of ovaryotomy silk ready immersed in carbolised water. Three consistencies of silk are contained in the japanned box. Figure about half natural size.

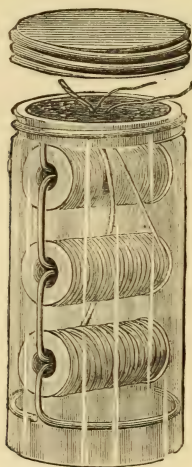


FIG. 231.—American Carbolised Gut-holder, in which the gut, immersed in 6 per cent. of carbolised oil, is drawn through minute apertures in the rubber cork.

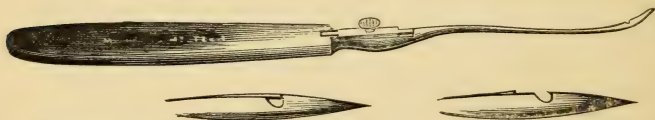


FIG. 232.—Reverdin's Needle, for use in closing the wound in ovariotomy. This needle effects a considerable saving of time.

we have any doubt, after a prolonged toilette, of the oozing being stopped, it is far better to put in a Keith's drainage-tube before closing the wound. When all is dried and clean, the large sponge, wrung out of some perchloride of mercury solution (1 in 10,000), is left in position, and the sutures are passed from within out at either side, each suture including the entire thickness of the abdominal wall and the peritoneum.*

It is well, also, to leave a sponge in Douglas's sac until after the sutures are passed. These are sufficiently long to be held up well out of the way by an assistant; and when all are inserted, the ends are separated and the sutures are relaxed sufficiently to withdraw the sponges, and once more to permit the surgeon to examine the abdominal cavity. The wound is now closed, and the operation is completed, save the dressing. When the wound has been sponged with carbolized water and dried, it is covered with some iodoform, salicylic, or boracic absorbent wool, retained in place by some strips of adhesive plaster.†

Some operators prefer the orthodox antiseptic dressing, as used in all Listerian operations. But if the dressing above recommended be carefully applied it answers better, and keeps the surface drier. The dressing is kept in its place by a light flannel binder not tightly applied.

TREATMENT AFTER OPERATION.—The room (without carpets or any superfluous furniture) in which the patient is kept must be airy, and a temperature of 60° should be maintained; two intelligent nurses, who can pass the catheter, and, if required, feed through the rectum, should be placed in charge; a second small bed is required to lift the patient on to, and any linen which is soiled should

* See p. 472, Reverdin's needle.

† The hydro-naphthol plaster of Seabury and Johnson, or Mead's plaster, will be found the best to use.

be immediately and gently removed. The quieter and more isolated the patient is kept the better. She requires no visitors save her nurses and medical attendant. Small doses of opium may be given after the operation, at stated intervals, or a hypodermic of morphia at night. The catheter has to be passed every six hours. The feeling to avoid the routine use of opium and morphia after operation is increasing. This was the view recently expressed by several operators at the Gynecological Society. As a pure hypnotic, sulphonal, in doses of from 20 to 30 grains, will be found generally effectual. For three days after the operation, the food has to be of the lightest kind—milk and soda-water, toast and water, barley-water, water arrowroot, thin gruel, beef-tea, chicken broth. Vomiting must be controlled by ice, iced champagne, teaspoonful doses of bismuth and morphia mixture, prussic acid, the administration of nutriment by the rectum. Flatus may be relieved by drinks of warm water, and the passage of a large catheter or enema pipe into the rectum. The sutures need not be disturbed for a week, and the wound usually heals without any suppuration. The dressing is not by some operators changed for a few days; but I prefer to dress the wound every other day (without disturbance of the patient) under carbolized spray. The drainage-tube is retained (if it be required) as long as we suspect any fluid accumulation. Should we suspect the accumulation of fluid in Douglas's sac, a vaginal examination must be made, and it may be necessary to insert a loop of drainage-tubing into this space.

After the sutures are removed, the sides of the abdomen should be supported by broad strips of adhesive plaster.*

* Goodell first drew attention to the occurrence of parotitis after ovariectomy, and several other operators have since noticed its occur-

THE CLAMP.—I have not here entered into any description of the extraperitoneal method of operating by clamp, or the clamp and cautery. Keith's great success was attained by this latter means. So was that of Spencer Wells, in all his

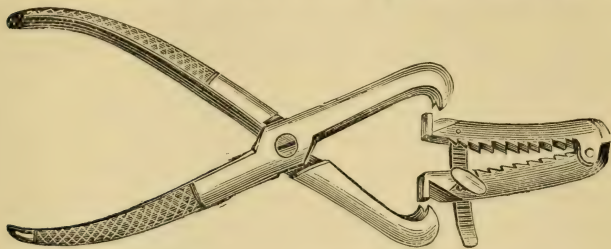


FIG. 233.—Pedicle Clamp and Forceps.

earlier operations ; and there may be some cases in which it may be deemed advisable to use the clamp in preference to the ligature. The clamp may be used with long and thin pedicles, its disadvantages being that it is apt to drag

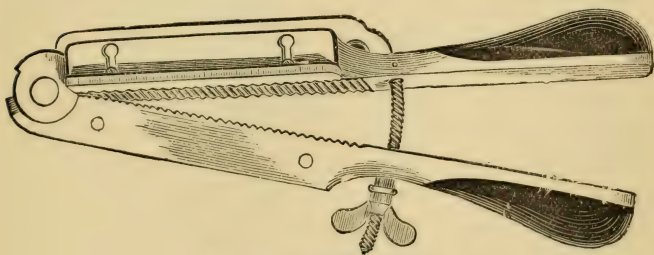


FIG. 234.—Cautery Clamp.

on the uterus, to create a ventral hernia, to prolong convalescence, and increase the risks of septicæmia. Under any circumstances, it is better to combine ligature and clamp.

This is not, however, a work in which to enter into the
 rence. It is not dangerous, though it may give rise to great discomfort, and end in suppuration.

relative merits of the two methods. Those who desire a complete description of the use of the clamp should consult the works already referred to, especially that of Sir Spencer Wells on the 'Surgical Treatment of Abdominal Tumours.' I limit myself to the operation with which I am familiar, and which is fast superseding that of the clamp and cautery.

Fig. 233 shows Wells' clamp for fixing the pedicle in the wound, and Fig. 234 the cautery clamp. The side which is next the skin is protected with ivory as a non-conductor. The pedicle is cut off at about an inch from the clamp, and then seared with a dull heat flush with the surface of the blade. The pedicle, if all be right, is dropped into the peritoneal cavity.

LISTERISM.—A thorough Listerite myself for the past fifteen years in all its details, I cannot avoid saying a few words as to the use of the spray in ovariectomy. My advice and practice is to adopt all the precautions of Listerism—with the exception of the spray during operation—before, during, and after ovariectomy.

In the persons of bystanders, assistants, and nurses—as regards their clothes, nails, and the use by them of disinfectants; in the *previous use* of the spray in the operating-room; in the cleanliness and disinfection of *all* instruments; in the special attention to sponges; in the care with which all products of decomposition are removed; in the use of carbolyzed ligatures and sutures; in the completeness of the toilette; in subsequent antiseptic dry dressings under spray, especially if there be drainage; and in the thorough provision by complete drainage for the escape of retained fluid—I believe, most thoroughly, in antiseptic abdominal surgery, no matter how successful be the results recorded by some surgeons by whom Listerism in all of its details may not be carried out.

Mr. Tait, in a paper read before the Gynecological Society, March 23, 1887, lays special stress on the advan-

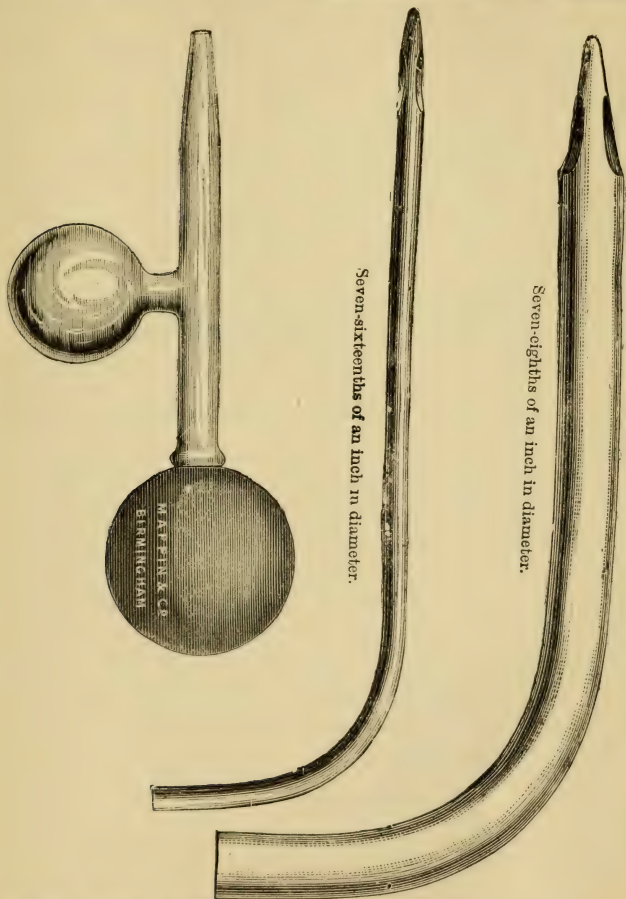


FIG. 235.—Tait's Aspirating Sucker and Ovariectomy Syphon Trocars.

tage of washing of the peritoneum over sponging. He uses his syphon trocars (large or small) both for drawing

off the contents of the cysts and for syphoning the abdomen. The india-rubber tubing is attached to the open end of the trocar, and water at a temperature of 106° to 107° , or even to 120° in case of hæmorrhage, is syphoned into the abdomen. He uses a special aspirating sucker (Mappin, Birmingham) to remove the remains of the fluid. In all cases of threatened hæmorrhage, ruptured cysts, accompanying ascites, and as a means of secondary cleansing, Mr. Tait advises a drainage-tube, advancing age being a decided indication for its employment. Mr. Tait, in certain cases, prefers a tube shaped like a urinary test-tube, closed at the

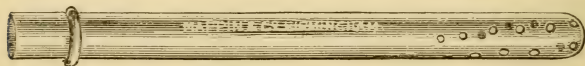


FIG. 236.—Tait's 'Test-Tube' Drainage-Tube.*

end, and perforated with holes for about two-thirds of its length.

'It is still,' writes Sir Spencer Wells, 'a question for future observation if flushing the peritoneal cavity with water is a really good practice, whether drainage is not often adopted unnecessarily, and whether the cleansing of the peritoneum by careful sponging is not the better practice.'

Mr. Tait says that by using this drainage-tube he avoids all risk of what he considers a 'not imaginary danger,' viz., the punching of a hole in the intestine by the ordinary Keille's drainage-tube.

* Messrs. Mappin, Birmingham.

CHAPTER XXV.

AFFECTIONS OF THE VAGINA.

Vaginismus.—Vaginismus is one of those terms unfortunately employed to distinguish a disease when it in reality should only be used as descriptive of a symptom, which may be due to several morbid or abnormal conditions both of the vulvar orifice and vagina. The spasm attending the vaginismus is looked on by some as a 'neurosis of motion' (Duncan). And there can be no doubt that we find this symptom associated with morbid apprehensiveness of touch or intercourse in women whom we describe generally, if somewhat loosely, as 'neurotic.' This term may agree with the equally vague and general one, 'hysterical temperament.' Hyperæsthesia of the vulvar outlet expresses more correctly what is generally termed vaginismus. The muscles said to be principally affected are the bulbo-cavernosi and the levator ani. But the entire muscular structure, voluntary and involuntary, including frequently the adductors of the thigh and the glutei, appear to be involved in the spasm. There is a state of extreme irritability of the nerves supplying the vulvar orifice and the vagina; and this irritability is often associated with a vascularity of the vestibule, and a state which Tait describes as 'serpiginous vascular degeneration.'

Causation.

Hysteria.

Vulvar hyperæsthesia (Tillaux).

Slight ulceration of the vulvar orifice.

Serpiginous vascular degeneration of the vestibule
(Tait).

Fissures.

Disproportion between the size of the penis and the
vaginal orifice.

Caruncle of the urethra.

Chronic vaginitis.

Chronic endometritis.

Coccygodinia (Routh).

Masturbation.

Incomplete intercourse.

Uterine inflammatory states and morbid discharges.

It is frequently associated with

Amenorrhœa.

Dysmenorrhœa.

Uterine cervical catarrh.

Hilton, and lately More Madden, have dwelt on the nerve supply of the sphincters (vaginal, rectal, urethral), and the part played by the common nerve supply of these orifices. It is urged that in vaginismus, the lesion in the sensitive filaments of the internal pudic nerve, distributed to the vulva, vagina, and anus, is the cause of the reflex spasm and pain. There is an important anatomical defect, to which Hegar and Kaltenbeck have drawn attention, which in itself may cause ineffectual intercourse, viz., the position of the vaginal orifice, which is placed too far forwards in consequence of too great pelvic obliquity. There can be no doubt that in some women the clitoris, also, is abnormally placed, and lying too far in front there is not the same natural sexual gratification as when it is in the normal position. Such women will complain that intercourse has little or no pleasurable effect. Yet they

frequently conceive and bear children. Some time since a patient consulted me for vaginismus and difficulty of intercourse. On examination I discovered springing from a hypertrophied clitoris a polypoid, pear-shaped, fibromatous mass, which the patient stated had been there for years, but had of late grown larger. I removed this with the galvanic ecraseur, and with subsequent dilatation she was rapidly cured.

Symptoms and Physical Signs.—The slightest touch, even with a feather, of the mucous membrane of the vulva, causes, in aggravated cases, pain and spasm. Examination with the finger is impossible. Sexual intercourse, at first painful, becomes ultimately intolerable, and all sexual desire is lost. A patient, a few years since, consulted me, who gave the following history. She married six months previously, and never had proper connection. Her husband never had a complete erection. This led to frequently repeated and futile attempts at intercourse. Of late any attempt at coitus produced the greatest pain. On examination I found a catarrhal discharge pouring from the highly irritable and vascular vulva. The general health had also deteriorated. On further inquiry I detected in the husband a spinal lesion, which explained the impotence. This is but an example of similar cases that I have from time to time seen in which ineffectual and awkward intercourse has gradually produced hyperæsthesia and irritability of the vulvar muscles.

On examination of the external genitals we may discover in some exquisitely sensitive spot the source of the pain and dyspareunia. The margins of the hymen in married women may be hypertrophied. We may detect a fissure at the fourchette, some small ulcers about the hymen or near the urethral orifice, or an irritable caruncle of the urethra and general vascularity of the vulvar orifice. In

any case of vaginismus where we cannot discover a local cause for the spasm in the vulva or vagina, a careful exploration of the rectum should be made. In most cases there is a rigidity of the sphincter ani—this chronic state of rectal spasm Sims says is pathognomonic. We may find the source of the affection in some ulcer, fissure, or hæmorrhoidal state of the rectum or anus.

Diagnosis.—This is easily made, and the history of the case is of itself sufficient to indicate the affection.

Treatment may be divided into general and local.

The General Treatment consists of :

Avoidance of intercourse.

Change of air.

Sea-bathing.

Warm alkaline baths of soda and starch ; used with a speculum inserted into the vagina while in the bath.

Exercise. (Horse-exercise specially recommended.)

Tonics ; mineral acids ; bark.

Bromides, with valerian.

Bromide and valerianate of zinc.

Attention to diet, and avoidance of too stimulating a diet.

Local treatment :

Warm vaginal injections of—

Laudanum (ʒi.—Oj.).

Chloral (gr. xx.—xxx.—Oj.).

Liq. plumb. subacetatis (ʒi.—Oii).

Suppositories—

Cocaine (gr. ii.).

Morphia (gr. i.).

Belladonna ext. (gr. ii.).

Iodoform (gr. v.).

Hyoscyamus ext. (gr. x.).

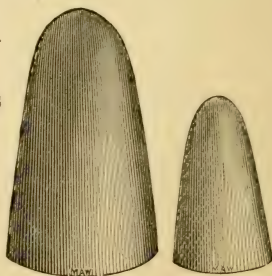


FIG. 237.—Vaginal Medicated Suppositories.

Ointments—

Belladonna (gr. xxx. ad. \bar{z} ii.).

Morphia (gr. v. ad \bar{z} i.).

Atropia (gr. ii. ad \bar{z} i.).

Iodoform disguised with coumarin (gr. xx.— \bar{z} iv.).

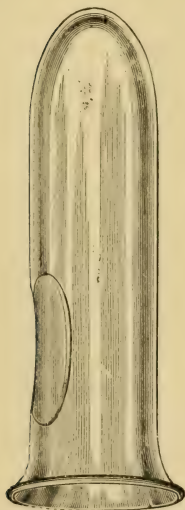


FIG. 238.—Sims' Vaginal Rest.

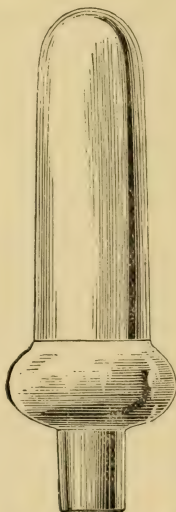


FIG. 239.—Solid Glass Dilator of Author.

Sims' vaginal dilator (this vaginal rest may be worn at night, and also for some time in the day. It can be retained in its place by a perinæal bandage).

Glycerine tampons may be worn at night, and can be used medicated with chloral and cocaine (grs. v. of the former, and grs. ii. of the latter in each tampon).

The hot vaginal douche used night and morning, with alkaline, sedative, or astringent lotions added.

Applications—

Cocaine (5-10 per cent.).

Carbolic acid (gr. x. ad ʒi.).

Solution of nitrate of silver (gr. xx.—ʒi. ad. ʒi., lightly pencilled to the sensitive parts).

Nitrate of silver (the fused stick lightly touched to the sensitive spots).

Operative Measures.—I have frequently done great service by the daily introduction of a diverging and conical Cusco's bivalve vaginal speculum with obturator, or Lane's speculum (p. 85) may be used. The patient having been anæsthetized (generally this step is required), the vulvar orifice is dilated with the thumbs, and the speculum is passed. This is then forcibly dilated and fixed by the screw. It is left thus for a few minutes. For a few days subsequently the speculum can be gently introduced and dilated. The vaginal rest may be worn. *Sims'* operation consists in ablation of the hymen and incision of the perinæal body. The first step of the operation is performed with a curved scissors; the second with a scalpel, two incisions being made through the vaginal tissue, one at either side of the mesial line of the perinæum, both meeting in the raphé. 'Each cut will be about two inches long, *i.e.*, half an inch or more above the edge of the sphincter, half an inch over its fibres, and an inch from its lower edge to the perinæal raphé.' I have found three sizes of a solid glass conical dilator, as shown in Fig. 239,* which the patient oils and passes herself twice daily, of the greatest service. It is retained by a napkin for a little time. *Sims'* operative procedure will seldom be found necessary if the other means of treatment are carefully carried out; especially removal of the hypertrophied portions of hymen and systematic dilatation of the vagina. More Madden advocates Emmet's modification of

* These are made for the author by Messrs. Mayer and Meltzer.

Sims' operation—by means of the finger within the anus, the sphincter ani is pressed against the posterior wall of the vagina, and with a scissors the fibres encircling the vagina on each side are freely divided under the mucous membrane. Obviously, all special applications will fail if we do not recognise and treat any diseased condition of uterus, vagina, or vulva which causes or complicates the vaginismus. The state of the urine must be carefully inquired into, any uterine discharge attended to, any vascular urethral growths removed, small ulcerations and fissure of the vaginal orifice healed. These cases are frequently cured by parturition. At times the essentially neurotic nature of the complaint is shown by the return of the symptoms after the labour. But the proposition of Gaillard Thomas is not to be lost sight of, viz., in those cases where the marital act is impossible from the attendant pain, to thoroughly anæsthetize the woman, in the hope that complete connection, under these circumstances, may result in pregnancy. Mann objects to this proposition of Gaillard Thomas and Sims, that even if pregnancy occur in such cases it does not cure the vaginismus, which returns after the pregnancy has terminated.

VAGINITIS.

The division of vaginitis into constitutional and local is most important from a practical point of view. It is natural that, in his anxiety to cure this troublesome and often obstinate local disorder, the practitioner may overlook the constitutional state which is behind it. Few practitioners there are who cannot recall to mind cases of vaginitis which have resisted active local treatment, and in which some error of diet or disordered condition of the urinary organs has explained the obstinacy of the inflammation.

The rectification of the constitutional error has been the first step towards the amelioration of the local irritation.

Varieties.—Vaginitis is :

Acute and Chronic.

Simple.

Granular.

Gonorrhœal,

Diphtheritic.

Causation.—In practice the first important point to decide is whether the vaginitis is a primary affection, or if it is secondary to either (a) any constitutional error, or (b) some local disorder in the uterus or bladder.

As a primary affection it owes its origin most frequently to :

Exposure to cold.

Traumatic causes.

Violent coitus.

Pessaries.

Caustics and irritants.

Pathology.—The vaginal mucous membrane passes through the ordinary stages of inflammation ; increased vascularity ; congestion ; swelling ; at first arrested, secondarily increased secretion. This inflammatory state is attended by desquamation of the epithelium, and a secretion of mucus with pus. Frequently this stripping of the epithelium leads, with the irritation of accumulated acrid discharge, to ulceration. In patients whose general health is impaired, and who contract vaginitis through the irritation of purulent discharges from the uterus, membranes may form on the vaginal mucous surface, of a diphtheritic character. These same croupous membranes are found in connection with the exanthemata.

Symptoms.—Acute vaginitis reaches a climax in from eight to ten days. It commences with a sense of heat and burning in the vagina; frequent desire to pass water; mucopurulent discharge, which occasionally is fœtid; pelvic and vaginal pain or perinæal throbbing; scalding and smarting sensation during micturition; excoriation of the vulva. The acid mucus secreted in chronic vaginitis is destructive to spermatozoa, and may prevent conception.

Granular Vaginitis.

In this variety a 'granular' condition of the mucous membrane follows the acute inflammation. The papillæ are enlarged, the mucous follicles also are hypertrophied. It is more commonly associated with pregnancy; but I have several times seen a granular state of the vaginal mucous membrane where the inflammatory condition has arisen from gonorrhœal discharges, or where endometritis and cystitis have complicated the vaginitis.

Physical Signs and Symptoms.—If with the tubular speculum the vagina be cleaned out, and the walls wiped with cotton-wool, as it is withdrawn, so as to remove all discharge, the rugæ will be seen enlarged and the rectovaginal and vesical septa swollen. The rough, eroded, granular, dark-red, and, here and there, fissured appearance of the mucous membrane, is quite characteristic of this form of vaginitis. On wiping the surface of the membrane with a sponge or cotton-wool, in the earlier stages of the disease, we find that it bleeds readily. The os and external surface of the cervix uteri are frequently engorged and granular. There is considerable irritation; the patient awakes at night, disturbed by the itching, smarting, and heat. Pruritis of the vulva is often present to aggravate the other symptoms, and this is rendered more difficult to treat in consequence of the acrid discharge which comes from the vagina.

Gonorrhœal Vaginitis (Specific).

Few morbid conditions of the genital organs in a woman are attended with so serious and permanent consequences as gonorrhœa. Despite every care in treatment, the latent virus may from time to time give rise to a variety of pelvic disorders; and when we least suspect it, the gonorrhœal taint is the source of some obstinate affection of the ovary, Fallopian tube, uterus, or pelvic peritoneum. It is not, then, so much on account of the immediate symptoms or distress that we have to regard gonorrhœa in the female as a serious affection, as the remote results which for years after the disease is contracted may continue at irregular intervals to cause uterine and other pelvic trouble.

Diagnosis.—This must depend on the history of the case; the examination of the husband; the intensity of the symptoms; the transmission to the male from intercourse. It is necessary to lay special stress on the extreme care with which, should we suspect gonorrhœa in a married woman, we must investigate the case. Two facts have to be remembered in practice, which have a most important bearing on the subject:

1. Other discharges in the woman than that of gonorrhœa may originate blenorrhœal discharge in the male. This is more likely to occur in men of a gouty temperament, and who may have had some latent urethritis existing, of a specific or non-specific nature.

‘I have seen,’ says Sims, ‘many cases of urethral inflammation in the husband that were unquestionably contracted from the wife, who, however, had merely a leucorrhœa of an acrid character.’ So has the author frequently.

2. As we may have little to guide us save the intensity of the symptoms and the urethral complication, without other collateral and confirmatory proof, sufficient to warrant

a practitioner in coming to a conclusion, we must be more than ordinarily cautious in expressing an opinion that the disease is specific.

It is easy at all times to judiciously frame an excuse for seeing either the husband or wife. And this can be done without letting either see that we suspect the disease is anything more than an ordinary attack of inflammation. This must depend on the tact and discretion of the practitioner.

Guérin explains the fact, well known in practice, that women who are apparently healthy, and who may fancy themselves to be so, often convey infection by the localization of the disease in the upper part of the vagina and the vaginal cul-de-sac.

Symptoms and Physical Signs.—Every symptom of simple vaginitis is exaggerated; onset of attack more severe; discharge more profuse and purulent; the local signs of inflammation are intensified; there is greater scalding on passing urine; there is greater swelling of the vulva—there may be excoriation, with more frequent tinging of the discharge with blood.

Some affections to which gonorrhœa may give rise:

Vulvitis and vulvar abscess.

Cystitis.

Metritis.

Endometritis (cervical and corporeal).

Salpingitis.

Ovaritis.

Parametritis.

Perimetritis.

Sterility.

Bubo.

Treatment of Simple Vaginitis.—Acute stages. Rest in bed; warm baths; vaginal injections containing borate of

soda, Condyl's fluid (ʒi.—Oj.), laudanum, decoction of poppy-heads, belladonna (such warm injections are to be used gently and slowly, not more than a pint at a time). The speculum may be used in the warm sit-bath, to which some carbonate of soda and starch have been added, and this can be repeated three times in the day. The warm vaginal douche, given with a Hayes tube, will be found to afford great relief; the nurse or the patient herself can be taught how to secure some wool either on a uterine probe or speculum forceps, and having smeared it well with some sedative ointment of morphia or belladonna, to apply it to the vaginal mucous membrane after the bath or injection. At night a medicated tampon of glycerine with belladonna or hyoscyamus and cocaine may be used. This can be applied the last thing before going to sleep, and removed in the early morning. Later in the affection tannin (ʒii. ad ʒi.) may be added to the glycerine, and the tampon need not be disturbed for forty-eight hours. Sleep may be secured by bromide of potassium and chloral, a preparation of opium, or the use of a morphia suppository in the rectum. The bowel must be kept free with a saline purgative. The diet should be non-stimulating, and alcohol had better be altogether abstained from. If there be urethritis and vesical irritation, the oils of cubebs, copaiba, or santal, prescribed with the emulsion of almonds, and in combination with the liquor potassii and tincture of hyoscyamus, will be found of service. The infusions of juniper, uva ursi, and buchu may be taken. Diluent drinks and infusion of linseed should be given. When the acute stage has passed, astringent lotions of sulpho-carbolate of zinc, sulphate of zinc, subacetate of lead, alum, boric, salicylic, tannic acid, and matico, can be used.* The warm douche should be

* Perhaps the best wash will be found to be that of perchloride of mercury (1 in 5000). This is used three times in the day. (Use Green and Goodwin's tablets, 1 to the pint equals 1 in 1500.)

continued, and the same sedatives used to allay irritation. Vaginal suppositories of cocaine, belladonna, tannic acid, acetate of lead, or iodoform, may be worn at night. Any uterine complication should be attended to. If there be a fistulous opening into the vagina this should be closed. Should the disease prove obstinate, the vagina may be mopped out through a cylindrical speculum with a nitrate of silver solution or carbolic acid and glycerine. Dr. Edis speaks highly of carbolic acid (ʒii.—ʒiv. ad ʒi. glycerine) in case of granular vaginitis. I have found excellent results from the use of chloride of zinc (grs. xxx. ad ʒi. glycerine). The vagina is first wiped dry, and all discharge is removed. Having so done, I prefer to pack the vagina with a tampon of dry absorbent cotton-wool. This is left in the passage for a few minutes, and then withdrawn. The vaginal walls are thus completely dried. A Fergusson's speculum is now introduced, and the entire vaginal surface is swabbed with any solution we wish to use, during its withdrawal. Thus the greatest relief from the sense of pain, heat, and itching will be obtained by swabbing the vaginal walls once with weak solutions either of nitrate of silver or perchloride of mercury, five grains to the ounce of the former and $\frac{1}{16}$ of a grain to the ounce of the latter. It is not necessary, save in rare and obstinate cases, to use very powerful solutions, or the strong nitrate of silver recommended by some (ʒii. ad ʒi. aquæ). On the whole, save in very exceptional cases, I think practitioners will do well to abstain from strong and heroic remedies in vaginitis. The glass vaginal rest will be found a useful aid in dealing with vaginitis.

Gonorrhœal Vaginitis.

There are some precautions which it is right to insist that the practitioner should specially observe in this form of vaginitis:

1. In the acute stage avoid any forcible injections; use simple soothing baths (Lawson Tait).

2. Before employing the astringent washes let the acute stage completely subside.

3. Keep the patient under observation for some time after the disease is apparently cured.

4. Remember the chronic and relapsing nature of the affection; the liability of the patient to attacks of endometritis and ovaritis for a considerable time, and the latent character of the gonorrhoeal virus.

ATRESIA OF UTERUS AND VAGINA.—Partial or complete closure of the uterine or vaginal canals or of the vulvar orifice may exist, either as a congenital malformation or an acquired condition. Partial closure of the uterine canal we are familiar with as ‘stenosis.’ Complete atresia of the uterus may be the result of closure either of the external or internal os. If there is closure of the external os uteri the entire uterus is generally distended, the walls being either hypertrophied or, on the other hand, considerably thinned (Scanzoni). If the internal os be closed, the cavity of the body is dilated.

Causation.—1. Congenital. Various forms of *malformation of the genital canal* may exist, as double uterus with imperforate hymen at one side, or absence of the vagina, or the double uterus has one horn closed and there is a single vagina; other malformations and complications may occur, such as hernia of the ovary. If the vagina is congenitally absent there is often no uterus.

2. Acquired.

The causes producing acquired atresia of the uterus are:

Parturition.

The use of caustics.

Operations on the cervix.

Cervical endometritis.

Senile atrophy.

Physical Signs of Atresia of the Uterus:

Absence of menstruation.

Presence of a tumour in the hypogastrium.

A uterine tumour felt through vagina, which gives a sensation of elasticity.

Impossibility of passing the uterine sound.

Symptoms.—The symptoms will be those which we have already considered as resulting from absence of menstruation. Also, the patient suffers from the consequences of the occlusion of the genital canal and the local accumulation of blood. These consequences, immediate and remote (in cervical atresia), are:

Accumulation of blood in the uterus—hæmatometra.

„ „ „ Fallopian tube—hæmato-salpinx.

Accumulation of serum in the uterus—hydrometra.

Perimetritis.

Pelvic hæmatocele.

Vicarious hæmorrhage.

Rupture of the uterus or Fallopian tube—septicæmia.

Atresia of the Vagina.—This condition is either *congenital* or *acquired*. In congenital atresia, which is very rare, there is arrest of development leading to complete or partial absence of the vagina. The hymen may be imperforate. The urethra may take the place of the vaginal canal, the os uteri opening into it.

The causes of acquired vaginal atresia are:

Parturition.

Injuries, burns, etc.

Syphilitic ulceration.

Caustics.

Physical Signs:

Absence of menstruation after puberty.

Impossibility of copulation.

Physical Signs :

Absence of the vaginal canal.

Cicatricial adhesions in the vagina.

Imperforate or persistent hymen.

Bulging of the hymen.

Fluctuating tumour detected per rectum.

Presence of uterus ascertained by the recto-vesical examination.

Enlargement of the abdomen.

In the case of double vagina, there may be atresia of one vaginal canal, the other being permeable; a longitudinal vaginal tumour which is 'tense and fluctuating,' felt through the permeable vagina, and cylindrical in shape (atresia vagina, Schroeder).*

Symptoms (after puberty) :

Periodical pain and tenderness in the hypogastric region.

Uterine colic.

Vesical irritation.

Retention of urine.

Abdominal tenderness.

Constitutional symptoms of amenorrhœa.

Vicarious hæmorrhage.

Symptoms of Inflammation and Hæmorrhage from Retained Menses.

Rapid pulse.

Cold skin.

Vomiting.

Rigors.

Violent abdominal and uterine pain.

Elevation of temperature.

Symptoms of hæmatocele.

Perimetritis.

* Cullingworth has recorded an interesting case of retained menses, in which the vagina was occluded throughout its lower portion by a membranous structure which was not hymen. The vaginal wall was hypertrophied.

The principal dangers to apprehend are :

Peritonitis.

Hæmatocele.

Septicæmia.

The retained blood is :

Dark coloured ;

Of the consistence of treacle ; has no coagula.

Atresia of the Vulva, congenital or acquired.—Congenital malformation of the vulva may accompany hypospadias (absence of urethra) and other congenital anomalies of the genital organs. The vulva may, in very rare cases, be entirely absent, or it may permanently retain its infantile form. The labia majora or the nymphæ may be adherent, and, occasionally, the former are so adherent posteriorly as to give the appearance of an enlarged perinæum. The vulvar orifice is occasionally closed from the same causes that produce atresia of the vagina.

Treatment.—This depends on the seat of the occlusion. Operative interference may be demanded : 1. To set free the imprisoned menstrual fluid ; 2. To permit of sexual intercourse. In all operations for uterine or vaginal atresia two principal dangers which have to be feared are :

(a) The admission of air, and septic changes in the fluid.

(b) The occurrence of uterine contractions, which may cause a retro-flow of the fluid through the Fallopian tubes.

To avoid the first danger, every antiseptic precaution, both before, during, and after the operation, should be taken to prevent the occurrence of septicæmia. The aspirator should be used to draw off the fluid. To prevent the second complication, it is better to draw off the fluid gradually, a very small needle of the aspirator, already recommended, being used. If the uterus is distended with

fluid, and the atresia situated in the cervical canal, not more than one-third (Thomas) of the fluid should be drawn off on the first occasion. A week may be allowed to elapse before a repetition of aspiration; and this careful emptying of the uterus is continued until the entire fluid is removed. The vagina must be well tamponed after each operation. The operation for opening the canal of the uterus Thomas performs under a fine carbolized spray, and he thus describes the steps: 'The cervix is steadied with a tenaculum, and a long exploring needle is passed into the uterine cavity. The sense of resistance once over, the escape of a drop of blood will assure the operator of his success in reaching it. Then putting into the gutter of the needle a delicate tenotome, he pushes it upwards to the required distance to open the canal. This section is repeated on the other three sides; the cavity of the uterus is syringed out with carbolized water, very gently forced from a small syringe; a glass plug is inserted in the cervix, and the vagina tamponed as after aspiration.'

Operation for Closure of the Vagina.—For a complete description of the operations of Amussat and Dupuytren the reader must refer to the larger works on Gynecology. In that of the former the steps are: (1) A catheter is introduced into the bladder, and held by an assistant, and the finger of the left hand is carried into the rectum; (2) a transverse incision is made through the integument, between the rectum and urethra; (3) the handle of the knife and the finger are used to tear open a passage to the tumour; (4) the tumour is opened with a trocar and cannula, a director is introduced through the cannula, and the latter is withdrawn; (5) a knife is used on the director to enlarge the opening. In Dupuytren's operation, an incision is made in the first instance transversely. With

the finger and knife-handle, the tissues are then torn through until the tumour is reached. A trocar is plunged into it, and the fluid evacuated. By means of a perforated sound the opening is enlarged, and the cavity is then washed out, by means of a catheter, with some warm antiseptic water. The best method of operating in the case of imperforate hymen, and the precautions to be taken in performing either aspiration or crucial incision, have already been referred to. In adhesion of the vulva, in infants or very young children, the deformity can generally be rectified by means of the combined use of the knife and fingers.

URINARY FISTULA.

It is not my intention to discuss minutely in this work the surgical treatment of all the urinary fistulæ. In surgical

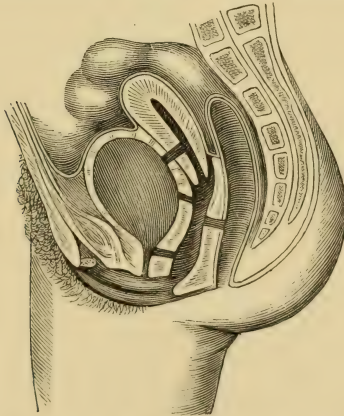


FIG. 240.—Diagrammatic Representation of Different Varieties of Fistula (after Sinéty).*

text-books these operations are fully described, and most so in the larger gynecological works already referred to.

* See chapter on Affections of the Female Bladder.

I shall simply devote a few words to the varieties of fistula and their causes, and conclude with a brief description of the operations for the two more frequently occurring forms of fistula, viz., vesico-vaginal and recto-vaginal.

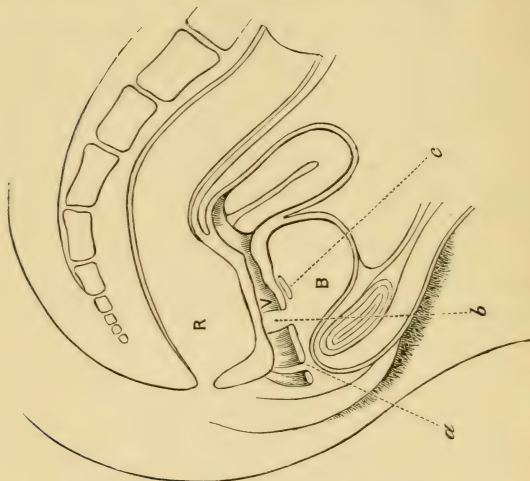


FIG. 241.—After Bozeman. (a) Urethro-Vaginal Fistula; (b) Urethro-Vesico-Vaginal Fistula; (c) Vesico-Vaginal Fistula. R, Rectum; V, Vagina; B, Bladder.

Varieties:

- Vesico-vaginal fistula.
- Urethro-vaginal fistula.
- Urethro-vesico-vaginal.
- Vesico-utero-vaginal fistula.
- Vesico-uterine fistula.
- Recto-vaginal fistula.
- Perineo-vaginal fistula.

Other varieties are described as uretero-vaginal, uretero-uterine, peritoneo-vaginal (Thomas). The names of these fistulae indicate the organs involved.

Causation :

Parturition ; most frequently protracted labour or the occasionally improper use of the forceps in cases in which it is contra-indicated by a conjugate, reduced below its working range, or when misdirected and unjustifiable force is employed—very rarely from the well-timed and skilled use of the instrument.

Vaginitis.

Traumatic causes.

Phagedæna.

Syphilis.

Cancer.

Stone in the bladder.

Symptoms and Physical Signs.—The urgency of the symptoms will to a great extent depend on the size and position of the fistula. But the principal symptoms are the involuntary passage of water or fæces by the vagina, and the excoriation of the skin and soft parts in consequence of this discharge. The fistulous opening is generally easily discovered with a Sims' speculum. Those fistulæ are the most difficult to detect which are very small or slit-like, and which are situated at the summit of the vaginal canal.

A minute fistula may be concealed by a vaginal fold ; and it frequently requires very careful searching and cleansing with probe, hook, and cotton-wool to detect a small fistulous orifice. At times it may be necessary, in order to detect the orifice of the fistula, to inject the bladder with some coloured solution, as indigo, cochineal, etc. It is best, if in doubt, to place the woman in the knee-and-elbow position, and have the vaginal canal well exposed with Sims' speculum. Should any cicatricial bands contract the vagina, or there be any atresic state of the genital tract, the diagnosis may be still more difficult.

Fistulæ differ in the extent of tissue destroyed, and the consequent size of the opening, which is sometimes so large that the entire base of the bladder is exposed. In a case I



FIG. 242.—Improved Urinal of Messrs. Matthews.

had under my care, some years since, this occurred, and there was also a recto-vaginal opening of sufficient size to admit the fingers. Fistulæ thus vary considerably in the amount of cicatricial tissue surrounding the edges. These

latter are constantly covered with mucus and phosphatic deposits which require to be carefully wiped away to see the exact shape, direction, and size of the fistula.

The dependence of vulvitis and vaginitis on the presence of urinary fistula is not to be forgotten. Not long since, in my practice, the obstinacy of a case of vaginitis was explained by the detection of a small fistulous opening, situated at the junction of the vagina and cervix.

OPERATION FOR VESICO-VAGINAL FISTULA.

Preparatory Treatment.—1. Sufficient time after parturition should in all cases be allowed to elapse—six weeks to two months, or even more, if the woman's health is not restored.

2. Change of air ; a stay by the seaside ; administration of tonics ; warm vaginal douches ; attention to the cleanliness of the vagina and the character of the urine and the action of the bowel.

3. Any tension of the sides of the opening must be previously attended to, and cicatrical bands divided by snipping these with scissors, a vaginal rest being inserted subsequently and retained for some days. By this previous operative step absorption of cicatrical tissue is secured and tension prevented. Immediately before operation the rectum is emptied.

Instruments and appliances required :

Sims' speculum (Bozeman's vaginal dilating speculum).

Spatulæ, or Bozeman's retractors.

Two long uterine tenacula.

Long-handled double hook.

Several vesico-vaginal knives (straight and angular).

A long rat-toothed forceps.

A few differently curved vesico-vaginal scissors.

Bozeman's hard and soft vulvo-vaginal and intra-vaginal dilators.



FIG. 243.—Vesico-Vaginal Fistula Knife, Straight.



FIG. 244.—Wire Guide.



FIG. 245.—Vesico-Vaginal Fistula Knife, Angular.



FIG. 246.—Vesico-Vaginal Fistula Forceps.

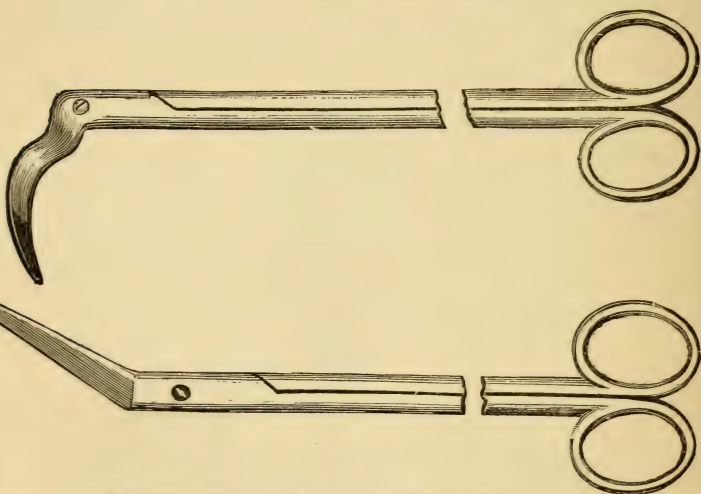


FIG. 247.—Emmet's Angular and Curved Scissors.

Bozeman's drainage support.

Wire-adjuster and wire-twister.

Perforated shot and compressor, or a strong blunt hook.

Bozeman's button-adjuster.

Several sponge-holders.

Short, straight, lance-headed, tubular, curved needles and needle-holder.

Silver wire and gut.

Several torsion forceps.

Several small sponges.

Vaginal douche.

Hot water.

Thigh crutch (Alexander's very useful).

Anæsthetic (not essential).

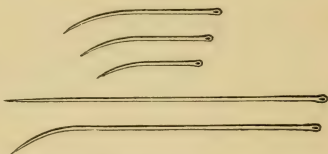


FIG. 248.
Emmet's Lance-headed
Needles.

Dr. Bozeman, of New York, at the International Medical Congress of 1887, read an exhaustive paper on the entire treatment—*preparatory and operative*—of urinary and fæcal fistula in women. A perusal of that communication in the Transactions of the Congress for that year will well repay the surgeon. I have taken some of Dr. Bozeman's illustrations to exemplify the various forms of fistula met with. Briefly, the steps of Dr. Bozeman's method are as follows :

- (a) Preparatory treatment ; ensuring cleanliness of the parts by vaginal douches, mild astringent and antiseptic ointments and applications.

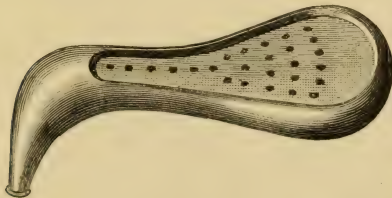


FIG. 249.—Utero-Vesico-Urethral Drainage Support. Entire length of instrument, $7\frac{1}{2}$ inches ; transverse of body, $2\frac{1}{2}$ inches ; length of body, $2\frac{1}{2}$ inches ; neck length, $2\frac{1}{2}$ inches ; width, $1\frac{1}{2}$ inches ; length of nozzle, from end of groove to its extremity, $2\frac{1}{2}$ inches.

- (b) The use of a utero-vesical or utero-vesico-urethral drainage support. This support—the two forms of which are shown (Figs. 249 and 250)—is adapted to the fistulous aperture, and

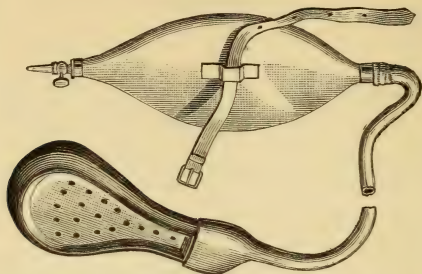


FIG. 250.—Utero-Vesical Drainage Support. Dimensions of instrument: Entire length, 4 inches; length of body, 2 inches; width of body, 2 inches; thickness of body, $\frac{3}{4}$ of an inch; length of dish, 3 inches; superficial area of dish, 4 square inches.

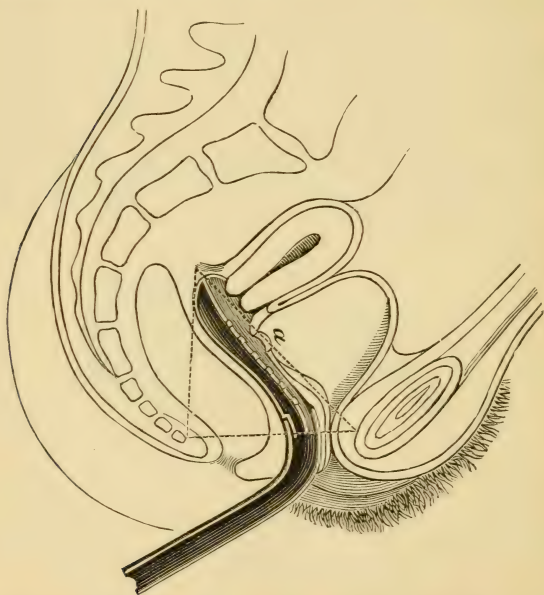


FIG. 251.—Utero-Vesical Drainage Support in place (Bozeman).

serves to draw off the urine. This drainage-tube adapts itself perfectly to the vaginal roof, and remains in position without the need of a T-bandage, provided preliminary care is taken to treat any contraction of the vagina and prevent

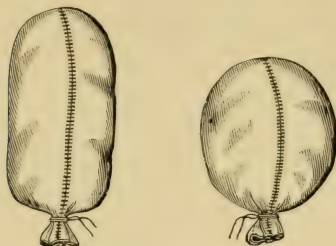


FIG. 252.—Vulvo-Vaginal and Intra-Vaginal Sponge Dilators (Bozeman).

undue sensitiveness from urinary contact. This appliance in itself affords the greatest comfort to the patient (Fig. 251).

- (c) The treatment of cicatricial contractions and distortions of the vagina. This is effected in a twofold manner:—1. Free division of cicatricial bands and adhesions; 2. Dilatation of the vagina by special dilators differing from his original in-

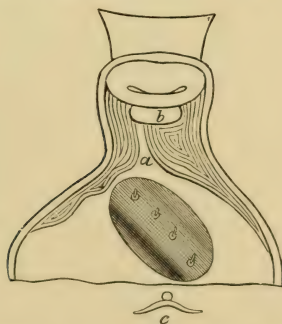


FIG. 253.—Showing Button Suture closing Fistula (Bozeman).

struments which he devised for this purpose. These dilators are either hard or soft. The former are made of hard rubber; the latter are soft bags made of oiled silk or *taffetas de soie*, and filled with cheap sponge. Two kinds of dilator are used

(Fig. 252), so as to effect either vulvo-vaginal or intra-vaginal dilatation.

- (d) Side by side with this system of continuous dilatation the further division of cicatricial bands is proceeded with, relaxation of the vaginal walls is procured, and the edges of the fistula are approximated and closed with the special button suture suited to the shape of the opening (Fig. 253). To aid in this endeavour, a system of daily traction on the cervix with a pair of sharp hooks is practised. The object of all these combined methods is to stretch the cicatricial tissue, elongate the uterine ligaments, and render the uterus more movable, and thus the surgeon is enabled with greater facility to approximate the borders of the fistula. In cases of pyelitis complicating fistula, Dr. Bozeman passes a long flexible renal sound by the ureter into the pelvis of

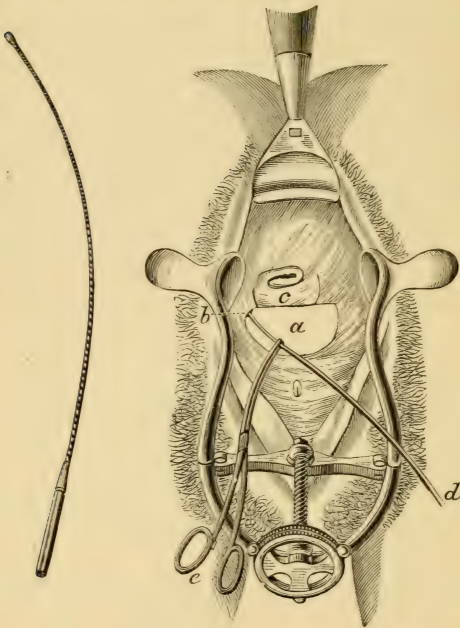


FIG. 254.—Showing Catheterization of the Ureter (after Bozeman); Dilating Speculum in use, and Perineal Retractor; Knee-Elbow Position. The Renal Sound is shown at left of figure.

the kidney, preparatory to its catheterization and irrigation (Fig. 254). To the operation of opening the bladder (where no fistula exists) and the sounding and irrigation of the pelvis of the kidney by the ureter, Dr. Bozeman gives the name kolpo-uretero-cystotomy. His dilating speculum, shown at p. 47, is used in all these operative procedures for the cure of fistula. In those rare cases in which the neck of the uterus

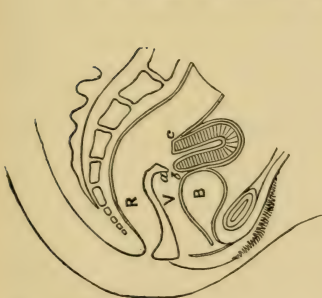


FIG. 255.—Incarceration of Cervix Uteri in Rectum (diagrammatic section, $\frac{1}{8}$ th size). Knee-elbow position.

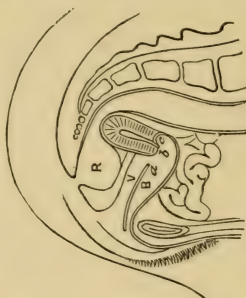


FIG. 256.—Incarceration of Cervix Uteri in Bladder; Posterior Lip shown in the Fistula (diagrammatic section, $\frac{1}{8}$ th size). Knee-elbow position.

is incarcerated, either in the fistulous aperture of the bladder anteriorly when the uterus is retroverted, or in the rectum posteriorly when it is anteverted (Figs. 255 and 256), Dr. Bozeman frees the uterus by division of the cicatricial bands and the subsequent dilatation of the vaginal roof with the soft dilators (Fig. 252).

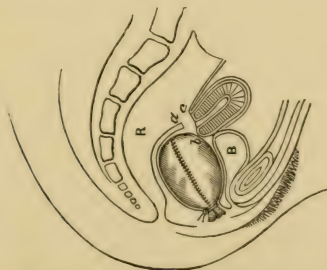


FIG. 257.—Showing Intra-Vaginal Sponge Dilator in place after division of Cicatricial Band in Fig. 255.

OPERATION OF CLOSING THE FISTULA.

First Step.—Denudation of the Edges.—The patient is placed in a good light in the lithotomy or knee-elbow position, according to the situation of the fistula.

At least three intelligent assistants and a nurse are required. The speculum or retractors are taken charge of by one; the instruments by the second; a third assists the operator when necessary; while the nurse attends to the sponges and water.

This consists in freshening the edges of the opening by removal of a strip of mucous membrane from its entire circumference, taking care to extend the incision well into the angles of the fistula. The tissue where the knife transfixes the mucous membrane is hooked up on a tenaculum, and put on the stretch. By care, in most cases, the ring of tissue desired to be removed can be taken away in a single circular strip. The mucous membrane of the bladder is avoided. The broader the raw surface is on the vaginal side the better. It may be necessary to use both curved scissors and knife in this step. Where the edge of the fistula is thin and bevelled, it may be necessary to split the edges or extend the denuded surface on the vaginal wall. Bleeding is arrested by very hot sponging, the hot douche, torsion, or possibly gut ligature. If the precaution has been previously taken of dilating the vagina and rendering the uterus more mobile by division of any cicatricial bands, the cervix may be drawn down by the double hook, and the strain is thus taken off the edges of the fistula.

Second Step.—Passing the Sutures.—The operator has now placed ready at hand the tenaculum, strong blunt hook of Emmet, Emmet's lance-headed needles of the selected sizes, threaded at the ends with a loop of silk, and fixed on the loop the silver wire, also needle forceps and holder. He

steadies the tissue with the tenaculum, and with the needle-holder or forceps enters the needle at about a quarter of an inch from the margin of the wound, pushing it forwards until it appears in the opening, when it is seized and drawn through. It is now entered at the corresponding point of

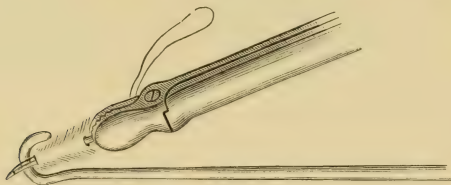


FIG. 258.—Showing use of Blunt Hook in passing the Suture (Emmet).

the opposite side, the vesical mucous membrane being again avoided, and the needle-point is made to protrude on the vaginal surface at the same distance from the margin of the fistula. The blunt hook or tenaculum is used to make counter-pressure by passing it under the needle-point,

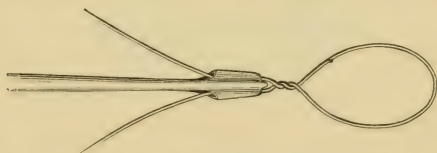


FIG. 259.—Wire-twister (Emmet).*

while the latter is pushed through any dense or resisting tissue. The needle is again seized and drawn through with the silver wire. Sufficient sutures are then passed, generally about four or five to the inch.

Third Step.—Adjustment of the Wound and Fixing of the Sutures.—When all the sutures are passed the operator

* I prefer the ordinary Thomas Smith's wire-twister commonly used in the operation for cleft palate.

again cleans the part of blood and arrests any bleeding from the pierced points. He then proceeds either by perforated shot or Bozeman's adjuster or the wire-twister to

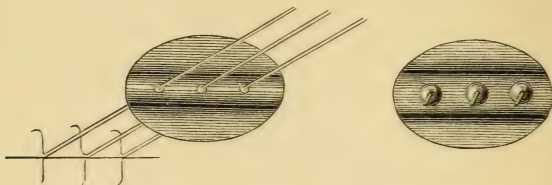


FIG. 260.—Bozeman's Adjusters.

adjust the sutures and adapt carefully the edges. In this step he is materially aided by the wire-carrier and wire-twister. If he simply twists the wire, he must be careful

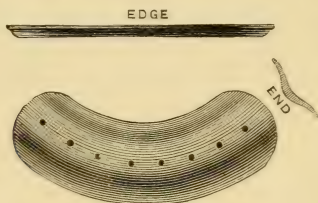


FIG. 261.—Shape of Button-Adjuster used by Bozeman in closing a large Vesico-Vaginal Fistula.

of the amount of tension he places on the sutures. Shot or the Bozeman's adjuster will be found far better and safer.

After-Treatment.—A careful nurse is given charge. A Sims' self-retaining catheter is placed in the bladder with a small tube attached. A broad flat-bottomed cup is placed between the thighs. The patient lies on her back. The

greatest care is taken as to the cleanliness of the catheter, which is withdrawn three times in the day and washed freely out by forcing a stream of carbolized water through it with a syringe. Any stoppage in the flow of urine is at once seen to. The catheter should be curved beforehand to the shape best suited to the individual case, and a second catheter should always be ready at hand to replace the one removed for cleansing purposes.

Opium is given to keep the bowel constipated. The vagina and bladder may be washed out with some mild disinfectant. The sutures are not removed until the tenth day, and an enema of castor-oil is given subsequently. The catheter is still used, and the woman is not allowed out of bed until the twentieth day.

RECTO-VAGINAL FISTULA.

Whenever the edges of this fistula can be brought well together from the vaginal side, the operation of closing it should be performed from that side. The woman is placed in the lithotomy position. The rectum is thoroughly emptied and washed out, and a sponge is carried to the sigmoid flexure so as to keep the part free of fæces during the operation. The steps are practically the same as in the vesico-vaginal procedure; but of the two the vaginal raw surfaces must be larger. It may be necessary to attack the fistula from the rectal as well as from the vaginal side. If so, the sphincters are thoroughly dilated, and a smaller duckbill speculum is used to expose the fistula. Sutures are introduced both from the vaginal and rectal sides. Goodell recommends the dissection of the vaginal mucous membrane for half an inch from the circumference of the fistula, in the form of a frill, which is inverted into the rectum, and the opening is closed both by rectal and

vaginal sutures.* The bowels are locked for fourteen days after the operation, though some operators prefer a daily evacuation. The after-care is the same as in other operations of a similar nature.

PROLAPSE OF THE VAGINA.

In discussing prolapse of the uterus and elongation of the cervix, it was necessary to refer to vaginal prolapse. The student has, however, to consider it as an independent affection, which may exist apart from any descent of the uterus. When the vaginal protrusion occurs as a primary affection, it is more likely to lead through traction to supra-vaginal elongation of the cervix than to prolapsus uteri. On the other hand, the three conditions, prolapse of the uterus, elongation of the cervix, and vaginal inversion, are frequently associated.

Causation (*vide* 'Prolapse of the Uterus'):

Old age.

Chronic vaginitis.

Operations.

Parturition.

Habitual neglect of the bladder and rectum.

Pathological Anatomy.—The relaxed anterior or posterior wall of the vagina, more frequently the former, protrudes into the vaginal canal, and drags with it, in its gradual descent, the bladder (cystocele), or the rectum (rectocele); an ovarian cyst may occupy the posterior pouch (ovariocele). The bladder, or rectum, may thus be carried down with the vagina; the former descending between the labia, the latter pushing the posterior wall of the vagina forwards, and finally effacing the perinæum, which merges into the prolapse. The orifice of the urethra may be visible on the anterior surface of the prolapsed mass; and the catheter

* See 'Lectures on Gynecology,' Goodell.

must be passed in a downward direction to reach the cavity of the bladder. Small intestines may occupy Douglas's pouch, which is displaced downwards. Fœtid urine is apt to accumulate in the bladder, and fæces and gas in the bowel.

Symptoms and Physical Signs.—The student may refer to the chapter on 'Prolapsus Uteri' for the symptoms of prolapse of the vagina. The characteristic condition may be found in some old patient who has borne several children. There is a sense of bearing down; some vesical irritation with incontinence of urine; the bowel is constipated. On examination, the anterior wall generally (from the shape of the vaginal canal) is found protruding into the vagina, and forming here a soft tumour. If the prolapse has lasted for any time, the tumour protrudes in front of the labia. The uterus is found by the digital and combined examination to be in its normal position, or perhaps somewhat lower in the pelvis. The catheter will detect cystocele, and the finger a rectocele.

For the treatment, the reader must refer to the chapter on 'Prolapse of the Uterus.'

CYSTIC TUMOURS.

Cystic tumours are occasionally met with in the vagina. Practitioners must be careful not to confound such cysts with

Hernia.

Cold abscess.

Varix.

Cystocele.

These cysts are generally single. They are painless. They give rise to little inconvenience, unless they are inflamed. Pressure does not affect the cyst as it would a

hernial protrusion. If in doubt as to the nature of the cyst, a fine exploring needle may be used. The cyst generally contains a clear, glairy fluid. The treatment consists in evacuation of the contents, and removal of portion of the cyst-wall. The cavity can be treated with carbolic acid. If *sarcomatous tumours* are met with in the vagina, they must, like polypi elsewhere, be removed by the écraseur. Should *epithelioma* attack the vagina, it must be dealt with on the general principles recommended for the treatment of cancer of the womb.

CHAPTER XXVI.

AFFECTIONS OF THE VULVA.

Hermaphroditism.

Hypertrophy of nymphæ and clitoris.

Hyperæsthesia (generally associated with vaginismus).

Erythema.

Erysipelas.

Eczema.

Herpes.

Pediculi.

Pruritus.

Lichen (extremely rare).

Lupus.

Oozing papilloma.

Rodent ulcer.

Epithelioma.

Medullary cancer.

Melanosis.

Elephantiasis.

Syphilis :

Primary syphilitic sores.

Secondary syphilides.

Condylomata.*

* Tarnovsky (St. Petersburg) describes a true *trachoma pudendorum* (vide p. 537).

Vulvitis :

Simple.

Purulent.

Phlegmonoid.

Specific.

Follicular.

Phlegmonoid inflammation of the labia majora.

Abscess.

Gangrene (noma).

Vegetations.

Cysts.

Varix.

Hæmatoma (hæmatocele, wrongly called thrombus).

Pudendal hæmorrhage.

Tumours :

Elephantiasis.

Pedunculated.

Sessile.

Neuromatous.

Sebaceous.

Fibrous.

Lipomatous.

Sarcomatous.

Cystic.

Hernia of ovary.

„ intestine.

Hydrocele.

It is not possible in a work of this nature to attempt more than a brief description of some of the more commonly occurring cutaneous affections of the vulva. Cutaneous diseases attacking this part must not be regarded as more within the province of the gynecologist than the dermatologist. Local peculiarities being remembered, they must be treated on general principles and by the local

measures we adopt for dealing with similar skin affections elsewhere.

It is my object to deal rather with those affections the clinical characteristics of which are materially influenced by the local anatomical and physiological peculiarities of this part.

Cutaneous Eruptions.—Certain general principles must be observed in the treatment of cutaneous vulvar affections.

1. Attention to the diathesis or constitutional condition of the patient; for example, hysteria, gout, struma, diabetes, scorbutic states, abnormal states of the urinary organs, cystitis, phosphates, and uric acid in the urine, syphilis.

2. Scrupulous cleanliness. Alkaline baths, local antiseptic washes of perchloride of mercury, salicylic, boric or carbolic acids. The soaps of thymol, eucalyptol, and vinolia, will be found useful.

3. The correction of any uterine, vaginal, vesical, or urethral affection, which, by an irritating discharge or otherwise, may prolong the affection of the vulva.

Hyperæsthesia.—Gaillard Thomas has drawn special attention to this painful condition. We constantly see patients in whom we can detect not the least abrasion or vegetation or irritable caruncle, and yet the introduction of the finger between the labia causes exquisite pain. Hyperæsthesia may attend on irritable urethral caruncle, painful vegetations, or the red patches described by Lawson Tait, and is occasionally met with where we have other manifestations of hysteria. It is the morbid condition most frequently associated with vaginismus. (See last chapter.) *The treatment* outlined by Dr. Thomas is that which I have found of the greatest service. This consists in: 1. Attention to the general health, restoratives and tonics. 2. The application of local sedatives and astringents; such as belladonna,

opium or chloroform, painting the part after drying it, with cocaine solution (10 per cent.), iodoform, tannin, alum (see treatment of vaginismus). There must be complete rest from coitus.

Eczema of the vulva in women and young children is frequently associated with a similar state of the anus and gluteal region by extension. It is frequently an evidence of a general debilitated condition due to some blood dyscrasia, occurring in lymphatic temperaments, or strumous constitutions, but it is more often due to local irritative discharges, or perhaps pediculi. The eruption is often of the impetiginous character; the part is hot, tender, and smarting, with pustules, vesicles, scabs, and excoriation of the skin and mucous membrane.

Treatment.—The constitutional condition behind the local eruption has to be carefully attended to and corrected, by means of the general principles above stated. The new muslin dressing ointments of Unna are admirable applications in such eczematous and other morbid vulvar states. These can be doubled so as to expose a surface of ointment to each labium, and retained thus in the vulva. They may be had of

Lead,	Arsenic,
Carbolic acid,	Belladonna,
Ichthyol,	Chloral,
Oxide of zinc,	Camphor,
Oxide of zinc and salicylic acid,	Creosote,
Oxide of zinc and thymol,	and
Thymol,	Corrosive Sublimate,
Boric acid,	Chrysophanic acid,
Iodoform,	Resorcin,
Iodol,	<div style="display: inline-block; vertical-align: middle;"> <div style="font-size: 3em; vertical-align: middle; margin-right: 5px;">{</div> For use in the chronic stages of the disease. </div>
Mercury,	

Some of the washes already enumerated will be found most useful, especially those of zinc and calamine, subacetate of lead, thymol, and sulpho-carbolate of zinc. It is in these cases that alkaline bathing and the correction of all acrid vaginal discharges are of such importance. The liquor carbonis detergens lotion, in the drier varieties, should be tried.

Herpes.—Herpes of the type of H. Zoster is found occasionally following in the course of the pudendal nerves. It must not be mistaken for a specific eruption. If a herpetic eruption occurs on the vulva, it is an indication for the administration of such tonics as the mineral acids with bark and quinine, generous diet, and a soothing local treatment as that indicated in the case of eczema. When the vesicles spread, and there is a tendency to pustulation, I find it an admirable plan to brush them over with a solution of nitrate of silver (grs. xxx. ad. ʒi.), which is permitted to dry, and then a muslin dressing may be applied. Outside the vulva the zinc (with calamine) lotion is a soothing application.

Pediculi frequently infest the vulva. In cases of eczema and pruritus they should be carefully looked for. It is at times necessary to use a lens for this purpose. The ammonio-chloride of mercury powder diluted with starch may be lightly dusted on the part, or the ointment of mercury or stavesacre rubbed in, or the perchloride of mercury lotion applied. One part of carbolic acid to seven of oil is a useful application.

Pruritus.—The practitioner must not fall into error in regarding pruritus as a primary disease rather than as a secondary affection of the vulva. Pruritus must not be looked on as a primary condition, but as a neurosis, secondary to some constitutional error of nutrition, or local

disease in any part of the genital tract. The danger lies in the mistake of treating a symptom and neglecting the disease which is the cause of its appearance. We may thus divide the causes of pruritus into constitutional and local.

Constitutional :

Gout.
Syphilis.*
Diabetes.
Gonorrhœa.
Exanthemata.
The menopause.
Pregnancy.
Senile changes.
Hysteria.
Bright's disease.
Alcoholism.
Gastric and hepatic derangements.

Of these, diabetes, alcohol, pregnancy, and gastric derangements are the most frequent.

Local :

Eczema.†
Lichen.
Leucorrhœal discharges.
Gonorrhœal „
Flow of diabetic urine.
Cystitis.

* Mr. Malcolm Morris doubts if syphilis is ever a source of pruritus. The author has never seen it primarily cause pruritus.

† It may be rightly objected that many of these local causes enumerated in the text only cause severe itching, not *true* pruritus. For clinical purposes I here group these incidental and often associated conditions in the consideration of pruritus generally.

Local :

Vulvitis.
Vaginitis.
Ascarides.
Pediculi.
Vegetations.
Urinary fistulæ.
Hæmorrhoids.
Uncleanliness.

The peculiarly nervous nature of this affection is shown by the total absence of all organic change in the skin in some cases. It is distinctly in most cases a reflex neurosis, and the actual source of the irritation is in the stomach, liver, or rectum. In a great many instances, however, the excoriation and accompanying eruption are secondary consequences of some irritating discharge, or the tearing of the skin by the nail in scratching.

General Treatment.—The treatment will necessarily be divided into general and local. The practitioner, on first seeing the case of pruritus, should inquire carefully into the origin and history of the disease. His success in overcoming the obstinate, and at times intractable, itching will depend on the discovery of the cause, whether constitutional or local, which has brought on the pruritus. Gouty and diabetic states must be dealt with according to general principles, both therapeutical and dietetic ; the character of the urine ascertained, and any abnormal condition of this secretion rectified as far as possible. Alcohol, according to circumstances, should either altogether be forbidden or taken in the most moderate quantity. All stimulating diet should be avoided. Those articles of diet enumerated in the subjoined list of less digestible foods, are, as a rule, hurtful to dyspeptics :

	<i>Less Digestible.</i>	<i>More Digestible.</i>
MEATS ...	<ul style="list-style-type: none"> Pork. Veal. Salt Meat. Duck. Goose. Liver. Sausage. Heart. Lamb. 	<ul style="list-style-type: none"> Fowl. Mutton. Roast Beef. Game. Turkey. Venison. Sweetbread. Chicken Panado.
FISH ...	<ul style="list-style-type: none"> Salmon. Eels. Salted and Potted Fish. Mackerel. Lobster. Crab. Scollops. 	<ul style="list-style-type: none"> Turbot. Sole. Haddock. Oysters. Trout. Plaice. Whitebait.
VEGETABLES	<ul style="list-style-type: none"> Artichoke. Celery. Spinach. Cabbage. New Potato. Raw Vegetables. 	<ul style="list-style-type: none"> Asparagus. Cauliflower. French Beans. Seakale. Lettuce. Potatoes (properly cooked—croquettes). Tomatoes. Rhubarb (stewed).
FRUITS ...	<ul style="list-style-type: none"> Wall Fruits. Preserved Fruits. Currants. Apples. Pears. Pineapple. 	<ul style="list-style-type: none"> Baked Apples. Grapes. Peaches. Strawberries. Gooseberries. Oranges.
SUNDRIES...	<ul style="list-style-type: none"> Pickles. Jam. Heavy Soups. Sauces. Iced Puddings. Pastries. Hot Buttered Toast. Fresh Bread. Beer. Hard-boiled Egg. Plum Cake. Cheese. 	<ul style="list-style-type: none"> Milk. Egg. Puddings of— Semolino. Revalenta. Rice. Tapioca. Macaroni. Vermicelli. Light Soups. Various Meat and Chicken Essences. Biscuits. Calves' Feet Jelly.

This list of foods may be of use to the practitioner in prescribing a dietary.

Dyspeptics should also avoid :

Stout.

Cider.

Sherry.

Liqueurs.

Effervescing wines.

Strong tea and coffee.

Fats.

Sugar.*

Cheese.

Excess of meat for gouty organs is as bad as excess of alcohol.

In hepatic derangement, the administration, a few times in the week, of a mild mercurial preparation, at night, in combination with a vegetable cholagogue, followed by the administration of a saline water the next morning such as Friedrichshall, Pullna, Hunyadi Janos, Victoria waters, or the Carlsbad salt in powder or crystal, will be of service. Such spas as those at Vals, Vichy, Ems, Homburg, Carlsbad, Kissingen, St. Galmier, Bourboule, Cauterets, Schwalbach, Aix-les-Bains, Harrogate, Bath, Cheltenham, Strathpeffer, can be recommended according to the temperament of the individual.† During pregnancy the patient may take suitable soothing baths, and use such local remedies as some of those in the subjoined list. The leucorrhœal discharge of pregnancy should be attended to. If there be constitutional syphilis, it must be dealt with by specific remedies, both general and local. Arsenic will be found of service in many cases.

* Saccharin is a most valuable substitute for the ordinary carbohydrate sugar. Less than a grain will sweeten a small cup of tea. It is 300 times sweeter than cane-sugar. It passes quite unchanged into the urine. It is both antiseptic and disinfectant. It may be obtained of any chemist in the form of a pellet or soluble powder.—*Vide* paper by author, *Medical Press and Circular*, October 10, 1887, and *Lancet*.

† See chapter on Health Resorts.

Local Treatment.—The first care of the physician will be to endeavour to rectify any uterine, vesical, or rectal affection that may complicate the pruritus.

Much benefit will be derived, in some cases, from the use of soothing alkaline and starch baths. But to this there are exceptions; and baths occasionally appear to do more harm than good.

The two baths I prefer are :

1. Bran (2 lb.), potato-starch ($\frac{1}{2}$ lb.), gelatine (1 lb.); water at 100° — 105° , 25 to 30 gallons.

To this a few gallons of decoction of marsh-mallow may be added. The bran and marsh-mallow water can be first prepared, and added to the bath subsequently.

2. Carbonate of soda (ʒii.), hyposulphite of soda (ʒii.), potato-starch (ʒiv.); water at 100° — 105° , 25 to 30 gallons.*

In ordering any *hot* bath for a female patient, the periods must be remembered, and their regularity inquired into. If there is suppression of the menstrual flow and accompanying head-symptoms, due to cerebral congestion, hot baths must be avoided. Such soaps as larch-soap (Dr. W. Moore, of Dublin), which is composed of wheaten bran, glycerine, white curd soap, and extract of larch-bark; sulpholine soap, vinolia, and carbolic or tar soap, may be used with the bath. A glycerine or medicated tampon, or pessary, can be introduced after the bath; the vaginal rest may be worn, and the lips of the vulva separated by a piece of folded linen or cotton-wool, smeared over with any sedative ointment, or the muslin ointments before referred to can be prescribed, and these may be kept in position by a light perinæal bandage or a napkin.

* A bath of *Liquor Carbonis Detergens* may be made of the strength of one teaspoonful to the gallon.

The local remedies which will be found of use either in washes or ointments to allay *itching* have been already enumerated. Those I attach most value to are :

Lotions of—

Hydrocyanic acid (min. v.— ʒi.).

Perchloride of mercury (1 in 2,000—1 in 5,000).

Tobacco, as infusion (ʒi. — Oi.).

Solution of subacetate of lead (ʒii. — ʒx.).

Chloral (gr. x. ad ʒi.).

Cocaine (5—10 per cent. solution).

Chloroform (1 pt. to 7 of oil).

Menthol (1 pt. to 7 of oil).

Liq. carbonis detergens (ʒi. — ʒviii.).

Ext. hamamelis liq. (ʒi. in ʒviii.).

Walnut-leaves (decoction of).

Calomel (lotio nigra).

Ointments of—

Pyroligneous oil (ʒi. ad ʒi.).

Cyanide of potassium (gr. ii—gr. v. ad ʒi.).

Morphia (gr. v. ad ʒi.).

Cocaine (gr. xx. ad ʒi.).

Belladonna (gr. x.—gr. xx. ad ʒi.).

Oleate of mercury and morphia (lanolated).

Many of these remedies must be used with caution, especially if there are abraded surfaces. The exact quantity to be applied should be stated in the prescription, as, for instance, cocaine, perchloride of mercury, belladonna, cyanide of potassium, morphia, hydrocyanic acid.

For the itching of diabetes Dr. Goodell strongly recommends the salicylate of soda, in 15-grain doses, every fourth hour (Dr. Simpson, Philadelphia). Bromides and chloral or sulphonal may be given to secure rest and sleep.

The washes which will be found most valuable in cutaneous affections of the vulva are those of :

- | | |
|--|------------------|
| Oxide of zinc or vinolia powder | } (ʒss.—ʒviii.). |
| Calamine (Corbyn's) | |
| Biborate of soda (ʒii.—ʒviii.) | |
| Carbonate of soda (ʒii.—ʒviii.) | |
| Acetate of lead (gr. ii.—gr. iv.—ʒi.). | |
| Solution of the subacetate of lead (ʒii.—ʒviii.). | |
| Sulpho-carbolate of zinc (gr. iv.—ʒi.). | |
| Thymol (1 in 500 to 1 in 1,000). | |
| Chaulmoogra oil in varying strength with almond oil. | |
| Camphor and borax (liq. camphor. concent. (Corbyn) | |
| ʒii., borax ʒiv., in ʒviii., with or without glycerine). | |

Special Astringents and Stimulants.

- Nitrate of silver (gr. xxx.—ʒi. ad ʒi.).
 Carbolic acid (gr. xxx.—ʒi. ad ʒi., or equal parts of carbolic and glycerine).
 Chromic acid (gr. xxx. ad ʒi.).
 Chloride of zinc (gr. xxx.—ʒi. ad ʒi.).

The use of any of the remedies here enumerated, whether used alone or in combination, will depend on the *nature* of the eruption, its *stage*, and the indication for a soothing, astringent, stimulating, or detergent application. It is wrong to commence with too powerful an application. Better, in most instances, to begin with a mild lotion, and increase its strength according to the toleration of the part.

Where there is a raw or moist surface of the skin the lotion of zinc and calamine (Wilson) will be found most useful, viz. :

- R. Zinci oxidi, ʒii.
 Calamine (Corbyn's), ʒss.
 Glycerini ʒss.
 Aquæ rosarum, ʒvii.ss. Ft. lotio.

To which either carbolic acid, or thymol, or hydrocyanic acid may be added. This can be used with a fine sponge.

The powder dries, and can be washed off before fresh lotion is applied.

When the inner surfaces of the labia or nymphæ are sore or swollen they should be separated by some emollient dressing—muslin dressings may be used—or a piece of linen can be folded and placed between them, or some cotton-wool. Unna's ready prepared muslin dressings are by far the most elegant pharmaceutical preparation, and can be had in great variety. The linen or wool can be covered with any application we wish to employ.

Specific applications in syphilitic conditions :

Calomel wash.

Oleate of mercury and morphia.

Calomel vapour baths.

Iodoform insufflated.

Sozo-iodol and its salts (ointment or wash).

Iodoform ointment.

Iodol insufflated.

Iodol ointment.

Mercurial (mild) ointment.

Ointment of calomel with bismuth.

Iodide of starch (ointment and powder).

Useful ointments in vulvar affections are those of :

Oxide of zinc (ʒi.—ʒi.).

Chloroxide of bismuth (ʒii.—ʒi.). These may be combined.

Glycerole of lead (ʒi.—ʒi.).

Oleates of lead and zinc (ʒss.—ʒi.).

Chaulmoogra oil (varying strengths, alone or in combination).

Iodol ʒss.—ʒi. ad ʒii.).

Iodoform (disguised with fresh coffee, equal parts, vanillin or coumarin, grs. v.) (ʒss.—ʒi. ad ʒi.).

Pyroligneous oil of juniper (alone or in combination, varying strengths).

Vinolia.

Picis liquidæ (ȝi.—ȝii. ad ȝi.).

Extract of belladonna (ȝi.—ȝi.).

Cyanide of potassium (gr. iii.—ȝi.).

All these may be made with lanolin.* A lanolated ointment is more readily and completely absorbed by the skin. As a rule, it is sufficient to add one part of fresh lard to two of lanolin as a basis for the ointment.

Lupus.—Certain chronic, painless, hypertrophic states of the vulva, without infection of the neighbouring glands, yet liable to various degrees of ulceration, have been by Duncan, Huguier, and others, described as lupus. Thin, from his pathological examination of some growths submitted to him by Duncan, supports this view, pointing out, however, that the microscopic appearances are quite different from those found in lupus vulgaris. There was small cell infiltration beneath the epithelium, and bloodvessels ran straight to this part. Fibrous tissue was found in all stages of development.

To this same condition of the vulva the ambiguous term *esthiomene* (ἔσθιω, to eat), has been given by Huguier. This term has been loosely used for a variety of serpiginous and ulcerative conditions. It has been applied, for instance, to a recurring malignant ulceration on the lower extremities, and to what was known as the 'menstrual ulcer' occurring in women. Its original application to the rare condition lupus exedens of the genitals in all probability accounts for its recent adoption in these asserted lupoid conditions of the vulva. Hutchinson and Malcolm Morris doubt the accuracy of Duncan's view, and rather regard these cases as having a syphilitic origin. I

* Ointments made with lanolin should contain as a rule one-third less of the active ingredient, on account of the absorbent properties of the lanolin. This is the rule I follow.

have met one such typical case as those described by Duncan. I clearly traced a syphilitic history. I shaved away the growth, used Paquelin's thermo-cautery, and the part healed. This appears to be the best treatment, attended, if there be evidence of syphilitic taint, by specific constitutional measures.

Oozing Papillomatous Tumour.—I have seen one case in consultation, in the Cork County Hospital, presenting exactly the clinical features described by Emmet under this name. The woman, about 30, was unmarried, and there sprouted from one labium, and extending round the fourchette to the other, a red, raspberry-looking mass, bleeding rather profusely on examination, painless, and secreting an offensive discharge. It was a most characteristic mass, and had grown to a large size before the patient came into the hospital. An effort was made with ligature and cautery to remove the growth, but the hæmorrhage was so great it was feared to proceed. I do not know what the sequel of the case was. Emmet's reported case recovered, though here also there was alarming bleeding.

Rodent Ulcer.—This very rare form of malignant disease does not differ, save in so far as it is influenced by the anatomical site in which it occurs, from the same disease elsewhere, and may be considered an epithelioma. The treatment is conducted on the same principles which determine us in the management of rodent ulceration occurring in other situations. If by the hard base and slow progress, tubercular appearance, and absence of pain, we are able to recognise the disease early and before ulceration has extended widely or deeply, we may prevent the spread of the growth by the knife and caustics, the most powerful of the latter being potassa fusa, chloride of zinc, and nitric acid. We must be careful to distinguish it from syphilitic ulceration, and from what few are likely to see in a lifetime—the so-called 'lupus of the vulva.'

Cancer of the labium is not a common disease. The form in which it is most frequently met with is that of canceroid. Epitheliomatous nodules may exist for some time, and give rise to little pain. It is not until ulceration commences that much uneasiness is felt. The inguinal glands become involved. It is difficult, save by careful microscopical examination, to distinguish such nodules from syphilitic neoplasms, or so-called lupus.

Treatment.—If superficial, it is better to remove the mass with the knife and use the actual cautery to the raw surface. Hæmorrhage is always to be dreaded. If present, powerful styptics or the actual cautery, and a firm compress applied with a bandage, will be necessary. But despite all our efforts, in advanced cases, fatal bleeding may result.

Syphilis.—Care has to be taken in the searching for and the recognition of primary syphilitic sores. They frequently are seen on the opposing surfaces of mucous membrane. They are either true chancres, chancroid sores, or they may assume the sloughing or phagedenic type. Chancres may also be found on the perinæum and anus.

Secondary syphilitic eruptions are frequently met with about the labia and perinæum, extending to the anus and gluteal folds.

EVIDENCES OF CONSTITUTIONAL SYPHILIS.

It may be well here to append this table of the principal signs and symptoms on which we rely as proofs of constitutional syphilis in a woman :

History of vulvar sores and discharges.

Glandular enlargements in the groins.

Induration of and enlarged nerve glands.

The presence of maculæ, papules, or roseola.

Symmetrical skin affections elsewhere.

General discoloration of the skin.

White cicatrices and scars on the body.

Symmetrical throat eruptions and ulcers.

Condylomata, syphilitic vegetations, and warts on the labia.

Palmar syphiloderm (psoriasis and erythema).

Syphilitic changes in the nails.

Falling out of the hair.

Headache.

Nodes.

Joint affections.

Ozæna.

Iritis and retinitis.

Stricture of rectum.

Gummæ, sores, fissures, and ulcers of the tongue.

Abortions and miscarriages.

Nasal and naso-pharyngeal affections.

In the treatment of primary sores, the vulva should be dressed frequently with calomel lotion, washed with carbolized or Condyl's lotion occasionally, and at night an iodol or iodoform ointment may be used, or whatever muslin dressing is selected. The best method of administering mercury is by inunction or hypodermic injection. The mercury may be given up to the point of its therapeutical manifestation, which is watched through its effect on the gums, and its use must always be carefully supervised.

In many cases of secondary and tertiary affection I have of late given the tannate of mercury in gr. ss.—gr. i. doses, either alone or combined with quinine, or with quinine and arsenic, with excellent results.

In secondary syphilitic neoplasms and exanthems in women I know of no safer or better preparation of mercury than the bicyanide in combination with quinine in pill, as already advised (gr. $\frac{1}{12}$, carefully divided, three times in the day). During its administration, the iodides of sodium and

potassium may be taken in full doses. Iodoform (in gr. i. —gr. ii. doses, in pill, three times daily), when it can be borne, acts more quickly. The mixture of the iodides of sodium, potassium, and ammonium in combination with bark is an admirable one. Iodide of potassium should always be given freely diluted with water to avoid iodism. Women suffering from specific affections require plenty of light nourishing food, change of air, and a continuance of anti-syphilitic remedies for some time. Mercury, whether by vapour or inunction, should be administered with great care, and it is a good plan to omit its administration from time to time, never pushing its therapeutical effects to the limit of salivation. As local applications to syphilitic sores, to clean their surfaces, and to encourage healing, iodoform, iodol, and iodide of starch (in the form of ointments) are excellent preparations. For sores about the anus black oxide of mercury lotion, bismuth and calomel ointment and calomel fumigation are most useful. So is light touching with a pencil of sulphate of copper.

But *the* treatment for the secondary and tertiary stages of the syphilitic exanthem is a sojourn at Aix-la-Chapelle. The patient should remain at least from five to six weeks. The treatment consists mainly in a graduated course of mercurial inunction under skilled rubbers, with baths, or, in severe cases, mercurial subcutaneous injections, the diet, bathing, exercise, and frictions being all carefully regulated. I have never seen a syphilitic case which was not either cured or greatly benefited by a sufficiently long course at Aix-la-Chapelle.*

Simple Vulvitis.—This affection is the result frequently of want of cleanliness, deficient food and exposure, violent

* Dr. Louis Blanc, of Aix-les-Bains, has written recently showing the value of this spa and its sulphur springs during the exhibition of a mercurial course.

coitus, pruritus and the consequent rubbing to allay the itching; in children it is produced from the same cause, occasioned by the irritation of threadworms. In simple vulvitis there is swelling, heat, irritation, and a leucorrhœal vulvar discharge of mucus, epithelium, and pus.

Purulent Vulvitis.—This is a much more serious form of inflammation. The preliminary symptoms are all intensified, and are followed by a copious discharge of pus. If the labia are separated, the mucous membrane is found in parts excoriated or ulcerated, and in some instances patches of diphtheritic membrane are seen on the mucous surface.

Causation.—It is brought on by—

Want of cleanliness.

Traumatic causes.

Gonorrhœa.

Excessive venery.

It is associated with—

Vaginitis and vaginismus.

Pruritus.

Vulvar eruptions (as eczema).

Fissure of the vulva.

The exanthemata.

Symptoms.—Besides the ordinary symptoms of vulvitis there are frequently most severe pruritus, frequency of micturition and scalding, with an inflamed meatus urinarius. The discharge has an unpleasant odour. Cystitis may arise. The treatment must be conducted on the lines laid down for the cure of vaginitis, both simple and specific. This includes rest; fomentations; baths; warm opium and acetate of lead lotions; poultices; mild astringent and sedative applications when the acute stage has passed; an emollient ointment applied and used to separate the nymphæ; later still, painting any raw surface with a mild

nitrate of silver solution, and using antiseptic and stimulating lotions of carbolic acid, boracic acid, sulpho-carbolate of zinc, thymol, etc.

Follicular Inflammation.—In this variety of vulvitis, the various glands—muciparous, sebaceous, and other—of the mucous membrane of the vulva, are swollen and inflamed.

Causes.—It is sometimes associated with the leucorrhœa of pregnancy ; otherwise the causes operating in producing follicular vulvitis are much the same as those which induce simple vulvitis.

Symptoms and Signs.—The same itching and sense of burning heat, with extreme sensitiveness of the vulva, that are present in other forms of vulvitis, mark the presence of the follicular varieties. Both the muciparous follicles and the sebaceous glands can be detected enlarged ; the former in patches, the latter as congested papillæ. A most important feature of this inflammation must be remembered by the practitioner, viz., that it is liable to cause urethritis in the male, and thereby give rise to a suspicion of unchastity in the mind of a husband (Thomas).

Treatment.—It is well to remember the recurrent nature of folliculitis. This is due to ante-inoculation and the dissemination of the micrococcus after the bursting or evacuation of the suppurated follicle. The urine should be examined for any sources of irritation ; it will be found at times glycosuric, and in the vulva, as elsewhere, this saccharine state of the blood tends to promote fermentative action and the development of microbial life. The uterus should be attended to, and any cervical or vaginal discharges cured. The uterine-cervical follicles may also be found swollen and suppurating. These will require treatment by the knife, curette or galvano-cautery. The perchloride of mercury lotion (1 in 5,000) may be used as a vaginal lotion. The

vaginal douche should be availed of a few times in the day, and some alkaline powder, such as biborate or bicarbonate of soda, added to it. A lotion of eau de Cologne in rose-water (3i. in 3viii.), with dilute hydrocyanic acid, will be found very soothing if there be heat and irritation of the vulva. The part should be first well sponged with warm water containing one drachm to the gallon of liquor carbonis detergens; next it is thoroughly dried, and the eau de Cologne wash is then applied.

Phlegmonous Inflammation of the Labia.—When from any cause we find that one labium has become enlarged, tense, hard, painful, and very tender, we may suspect phlegmonous inflammation. The effusion is generally followed by the formation of pus and an abscess. After opening a large vulvar abscess the practitioner should carefully see that it heals well from the bottom of the wound. Nor should the patient be allowed from under observation until it has so healed. Otherwise a sinus is apt to remain, which will require subsequent free slitting open with the knife, and seriously protract the recovery of the case. We must treat it on the general principles of relieving pain, promoting the formation of pus, its free evacuation, and the use of disinfectants. Care must be exercised not to mistake phlegmonous inflammation for a hernia, hydrocele, or pudendal hæmatocele. That an ovary may be displaced into the vulva, we have seen. We must not commit the pardonable error of mistaking such an inflamed ovary for phlegmon. The presence of a circumscribed tumour in either labium, which becomes periodically sensitive and very painful—this increase of sensitiveness corresponding with the menstrual periods—should be sufficient to remind us that an ovary may find its way into the labium.

Abscess of the Vulvo-Vaginal Glands.—This affection of the vulva and its treatment has already been incidentally alluded

to (page 3). The position of the tense, hard, painful swelling, frequently attended by a certain degree of vulvitis, and its sudden advent, should be sufficient to indicate the nature of the inflammation.

Gangrene—Noma.—This serious affection is not, fortunately, of frequent occurrence. Yet I have seen one instance in which death occurred, not so much from the ravages made by the local gangrene as the cachectic weakened state of the child. I have never seen it occur in women. The predisposing causes are such as we find producing low and unhealthy types of inflammation elsewhere in the body, notably cancrum oris, and those sloughing ecchymatous sores frequently seen in impoverished and dirty children. If not checked, the course of disease is that of unhealthy ulceration when attended by mortification generally.

The *treatment* consists in generous support of the child, and such disinfectants and antiseptics, applied locally, as carbolic acid, chloride of zinc, iodoform, Condyl's fluid. Poultices had better be avoided. If any are used, those of charcoal, and yeast with nitric acid, are perhaps the best. The usual means adopted to prevent the spread of mortification must be had resort to in this case, as the application of nitric acid, pure carbolic acid, and the actual cautery.

Warts and Vegetations.—These growths occur in different situations about the vulvar orifice. They are frequently the result of gonorrhœa or syphilis. This, however, is by no means the rule. I have had a young patient, a virgin, under my care, suffering from leucorrhœal discharge and two pretty large vegetations growing from the neighbourhood of the clitoris. These growths should be removed by the scissors. It is a good plan, if the wart is of large size, to apply a ligature to its base or pedicle a few days before

removal. We thus avoid the chance of much hæmorrhage, which otherwise may be inconvenient. Such warts should never be cut off carelessly without means at hand to restrain the bleeding which may follow. I have destroyed these vegetations without any cutting operation, by means of the repeated and careful application of acid nitrate of mercury, chromic acid or glacial acetic acid. In more aggravated cases it may be necessary to apply the actual (Paquelin's) cautery after the removal of the growth with a cutting instrument.

Trachoma Pudendorum.—Tarnovsky has described a true trachoma of the labia. The disease consists in the aggregation of nodules of a grayish or yellowish colour. These may coalesce and form an oval patch, the epithelium covering of which thickens and becomes rough. The nodules contain micrococci and epithelial cells. This condition is more likely to be found in those who have been exposed to gonorrhœal infection. It causes, especially with warmth, itchiness of the vulva, and a sense of heat.

The *treatment* consists in superficial scarification of the trachomatous patch, and the use of such lotions as those of perchloride of mercury (1 in 2,000), nitrate of silver (5-10 gr. to ʒi.), or chromic acid (10 gr. to ʒi.).

Cysts of the Labia are comparatively rare (cyst of the vulvo-vaginal gland has been referred to, page 3). They must be treated on the same plan as that recommended for the destruction of vaginal cysts.

Varix of the Pudendal Veins is generally the result of pregnancy. The danger is rupture of a vessel and serious hæmorrhage. A suitable air-pad support will be found useful in these cases. If hæmorrhage should occur, the usual means must be taken to control it (see 'Pudendal Hæmorrhage').

Pudendal Hæmatoma (wrongly called thrombus).—Puden-

dal hæmorrhage. Blood may pour in quantity from the labia in consequence of puncture or laceration of the veins of the vestibule. Or it may accumulate in the cellular tissue of the labium. This accident is one which may occur during parturition. Independently of pregnancy, it may follow from traumatic causes or violent muscular efforts. The sudden appearance of a swelling in either labium, following the injury or strain, and the sense of throbbing and pain which generally succeeds, are in themselves sufficient to indicate what the nature of the accident is. However, cases occur in which the attention is first attracted by the presence of a tumour, and the obstruction it causes to micturition or coitus.

Treatment.—If the vulva is bleeding from a wound, a tampon must be placed in the vagina, and a firm compress with a T-bandage secured externally. This may be made to include a small ice-bag. A saturated solution of alum may be kept to the bleeding part. An acupressure pin or a silver suture can be passed from the cutaneous to the mucous surface, so as to compress the bleeding vessels (Goodell). If the blood is effused ('hæmatoma') into the cellular tissue, and a tumour forms in the labium, it may be (1) absorbed, or (2) remain in a liquid state, or (3) supuration may occur. Rest, pressure, and cold will generally favour absorption. Should this not happen, and inflammation and suppuration follow, the pus must be evacuated, and any coagula removed, by an incision made from the mucous surface, with every antiseptic precaution.

Tumours are found growing from the labium, nymphæ, hymen, and clitoris. Perhaps the most commonly met with are the lipomata. They are readily removed with knife, scissors, or écraseur.

Elephantiasis is an extremely rare disease in Europe. The lymphatic vessels are dilated and hypertrophied.

There is connective-tissue hypertrophy. The lymphatic obstruction is ascribed to the presence of the *filaria sanguinis hominis*. Labia and clitoris may both be involved. The growth is treated by removal by means of knife and thermo-cautery.

Hernia of either the ovary or intestine may occur into the labium. Its descent by the unobliterated canal of Nuck is analogous to the corresponding descent of the intestine in inguinal hernia in the male. The bowel can generally be reduced in the recumbent posture by taxis, but it may become strangulated. The possibility of this accident must be remembered by the surgeon before he takes up a lancet to open an assumed abscess or cyst of the labium (see chapter on Diseases of the Ovaries).

As liable to be mistaken for hernia Koppe has described cysts of the round ligament. These cysts may be due either to effusion of blood in unobliterated canals in the ligament, or to distension of the vaginal process of the peritoneum, the inguinal portion being obliterated. Such cysts are apt to be mistaken for cystic distension of the vulvo-vaginal gland.

Hydrocele, or an accumulation of fluid in the canal of Nuck, is of such rare occurrence that we need not here consider its pathology in detail. It may be sacculated if the abdominal opening of the canal is closed; otherwise this fluid can be pressed out of its sac. It is well, however, to remember the possibility of such a condition existing, and not to commit the error of mistaking it for hernia, tumour, or abscess.

CHAPTER XXVII.

URETHRAL AFFECTIONS.

THE principal affections of the female urethra are :

- Congenital abnormalities.
- Urethritis.
- Prolapse of the urethra.
- Urethrocele.
- Fistulæ.
- Stricture.
- Angioma.
- Vegetations.
- Vascular caruncle.
- Tumours.
- Cancer.
- Polypi.
- Calculus, and foreign bodies in.

The *urethral and bladder specula* of Mr. Reeves are very serviceable for diagnostic and therapeutic purposes. They are made of silver, hence a good light is obtained. In dark seasons they reflect artificial light admirably for illumination purposes. The smaller ones are used in the consulting and out-patient rooms, and the larger ones are introduced after the urethra has been dilated by the surgeon's finger guided by a probe. As the finger is withdrawn, the larger instrument, previously dipped in carbolic oil, is introduced,

and by rotating it the whole length and circumference of the urethra and part of the vesical mucous membrane are brought to view, and can be cauterized, incised, etc. ; with small pieces of sponge on handles, and, for the smaller instruments, cotton-wool twisted on Playfair's probes, we may mop away the urine until the parts are dry and a clear view is obtained. These simple and effective instruments were made before Simon's vulcanite specula.

Emmet has devised and advocates an operative procedure for exploration of the urethra, by means of which the entire canal can be explored and any local treatment applied. It is safe, and can be performed without difficulty. It does not interfere with the control of the urine. It affords

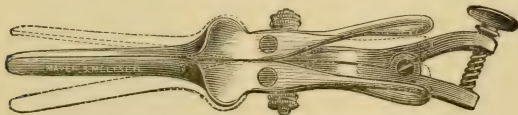


FIG. 262.—Reeves's Speculum.

physiological rest to the bladder in cases of cellulitis, cystitis, and in other cases of persistent bladder irritability. He calls this step 'the button-hole operation.' It is performed thus: The patient is placed on the left side under an anæsthetic, and a Sims' speculum is introduced so as to expose thoroughly the anterior vaginal wall. Emmet himself uses a 'button-hole scissors,' the long blade of which takes the place of a urethral sound and has an aperture through which the vaginal blade passes, the latter being so curved as to avoid the urethral orifice in the incision.

Under any circumstances, it is better to introduce a sound of sufficient size to stretch the urethral tissues. A knife may then be used. The tissues on the vaginal side of the urethra are incised down to the sound, midway between the urethral orifice and the neck of the bladder ;

this latter must be carefully avoided. The line on the vaginal side is a third more than that on the urethral—this extension being mainly on the vesical side of the incision. Through the incision thus made we can explore the urethra and the entrance to the bladder. If this is our sole object, we close the wound immediately after by



FIG. 263.—Button-hole Scissors.



FIG. 264.—Emmet's Button-hole Opening.

passing sutures, which include the urethral mucous membrane, and pass from one side of the wound to the other, the lips being well everted by a tenaculum. The patient is kept in bed for over a week, and the passage of a catheter is avoided if possible.

On the other hand, if our object be to maintain the

patency of the opening, so as to secure physiological rest for the bladder, the edges of the urethral mucous membrane are united to the vaginal surface by means of interrupted sutures of silkworm gut or carbolized silk. The edge of the urethral tissue is drawn out and covered by the vaginal membrane, and both are neatly united, and granulation, if possible, prevented. The patient is kept in bed, the parts are douched with warm carbolized water, and after the douche or sponging, the wound is smeared with some mild astringent ointment or salve; this treatment is continued for some time. If the opening is no longer indicated, it is closed in the same manner as a vesico-vaginal fistula, with the exception of the points referred to in describing the method of closing the recent wound, after making a button-hole aperture.

Urethritis is generally the result of specific inflammation, though it may accompany other inflammatory states, both of the bladder and vulva. For the general treatment, the reader can refer to the chapter on Vaginitis. If the urethra should remain inflamed and vascular, one astringent application may have to be made to the mucous membrane, such as nitrate of silver.

Prolapse of the Urethra is very rarely met with. Care must be taken not to mistake the red and everted mucous membrane for a urethral growth. The prolapsed portion has to be removed either by knife, scissors, ligature, or galvanic wire. Hæmorrhage has to be controlled by a tampon and T-bandage. Emmet's plan of treating prolapse of the urethra is to make an opening in the urethra similar to that described in the button-hole operation. The prolapsed tissues are drawn through the slit from before backwards. A sound is carried into the urethra to place it on the stretch. Sutures are then introduced 'entirely through the flaps in the urethra, so as to transfix the lining mem-

brane along the edges of the wound ; the excess of tissue is then removed, and the opening closed.'

Urethrocele.—Dr. Emmet points out the difference between simple prolapse of the urethra and true urethrocele, in which latter affection there is both shortening and sacculation. This sacculation, Bozeman explains, is due to contraction at or near the meatus and its consequent dilatation and bagging above the constriction, and the retention of urine in the urethra. Emmet, on the other hand, associates urethrocele with injury to the urethra, occurring either in too rapid or tedious a labour. The head in its advance pushes the loose mucous and submucous tissues of the upper part of the urethra into that portion below the pubic arch, and thus dilates it. Cicatrization of either end of the urethra may occur with resulting sacculation of the intervening portion of the canal. Such conditions of prolapse or true sacculation require careful examination on the part of the surgeon, so that he may not confound the swelling with tumour or vesical enlargement, or look on it as a mere secondary consequence of either a rectal or uterine affection. In urethrocele, Emmet introduces a block-tin sound into the urethra. With this the prolapsed tissue of the vesical end of the urethra is pushed back into the bladder. The centre of the urethrocele is steadied with a tenaculum while the sound is cut down on with a bent scissors. A fairly free incision is made, avoiding the neck of the bladder or the meatus urethra. The excess of tissue entering into the urethrocele is now cut away, but sufficient tissue is left to cover the sound. The sac is thus obliterated. The urethra is then, with tenacula, drawn out to its complete length, and with fine interrupted silk sutures the vaginal and urethral mucous membranes are brought together. The urethro-vaginal fistula thus made is not closed until the urethra is restored to nearly a normal condition.

Stricture.—Stricture of the urethra may follow :

Traumatism in labour.

Cauterization.

Gonorrhœa.

Vulvar lupus.

Congenital origin.

Dr. Herman has reported a case of lupus limited to the urethra, but this affection is very rare.

Stricture must be treated either by rapid and forcible dilatation, or by gradual dilatation. If the former is practised, care must be taken not to injure the neck of the bladder so as to cause incontinence.

Duke's dilator may be used for rapid dilatation.

I cannot say that any permanent trouble has ever arisen in any case of urethral dilatation in my practice. Emmet has recorded two cases of incontinence in eleven cases of dilatation ; Noeggerath two cases of incontinence out of seventy-five.

I prefer my uterine dilators for this purpose to any other. The practitioner will do well to use gradual dilatation and exercise all possible caution to avoid laceration of the neck of the bladder. Emmet insists on the superiority and safety of his method of exploration.

Fistulæ of the urethra must be closed by operation (see last chapter).

Both *venous angioma* and *vegetations* are differentiated from urethral caruncle by their want of sensitiveness.

Polypi are readily removed.

URETHRAL CARUNCLE. — *Situation and Nature.*—This most painful growth is found at the orifice of the meatus. It consists of a mass of hypertrophied papillæ, freely supplied with bloodvessels and nerves. The papillæ are surrounded by connective-tissue, and are covered by squamous epithelium.

Symptoms and Physical Signs.—The patient generally consults us for great pain and frequency in passing water ; this at times amounts to excruciating agony. She has to avoid coitus, and if the case be an aggravated one there is pain in walking, and the slightest movement causes distress. The woman's suffering is written on her countenance. She is anxious, depressed, nervous, and hysterical. On making an examination, the cause of the suffering is at once apparent in the little raspberry-red growth or growths which are seen, either sprouting from or occluding the urethral orifice. These may be very small (the largest I have seen have not exceeded in size a small bean), or they may grow to the size of a pigeon's egg. The characteristic feature of the affection is at once demonstrated by the intense pain on touching the growth, even with a little cotton-wool rolled on a probe. When incompletely anaesthetized the woman will still wince if the tumour be manipulated. Caruncle may occur at all periods of life, both in married and single. Dr. Goodell thinks that the pressure on the urethral veins during the arrest of the head in labour may predispose to the occurrence. So may irritating discharges and habits of uncleanness.

Prognosis.—The great tendency to recurrence should be remembered. This applies more to the sessile variety than to the pediculated. When multiple, if they are pediculated, there is the best chance of complete cure.

Treatment.—There is but one satisfactory treatment for urethral caruncle ; viz., removal by forceps and scissors, and the subsequent application of the actual (Paquelin's) cautery, or the galvano-cautery knife or wire may be used. We must be prepared for smart bleeding, which may have to be controlled by tampon and compress. If an operation will not be submitted to (which is exceptional), the topical application of such agents as carbolic acid, nitric acid, and

chromic acid may be tried in order to deaden sensibility. For incontinence of urine with pain, whether it is caused by urethral growths, extraneous pressure, or vesical irritation, the greatest relief will be found frequently to follow simple dilatation of the urethra. This can readily be effected in the manner already described.

Malignant Disease and Tumours.—Cases of sarcoma, epithelioma melanosis, and rodent ulcer are occasionally met with. Temporary arrest or limitation of the disease is the most we can hope to effect by treatment in these cases. The galvanic knife, Paquelin's cautery, the curette, and such caustics as chloride of zinc, lactic acid, chromic acid, will be found the best methods of dealing with these growths.

CHAPTER XXVIII.

SOME AFFECTIONS OF THE FEMALE BLADDER.

CYSTITIS.—*Causation*.—This is an affection which the gynecologist has constantly to deal with, whether as the consequence of exposure to cold and pelvic inflammatory conditions, or following traumatic causes, either operative or as the result of direct violence.

The principal causes are :

- Exposure to cold.
- Parturition.
- Habitual neglect of the bladder.
- Uterine displacements.
- Morbid states of the urine.
- Gout.
- Urethritis.
- Gonorrhœa.
- Stone.
- Tumours.
- Passing unclean catheters.
- Excessive coitus.
- Parametritis.
- Operations.
- Injuries.

Symptoms.—The symptoms are, increased frequency in passing water, irritability at the neck of the bladder, with

pain during, and immediately after, the act of micturition. If the affection be chronic, we have not alone the frequency of passing urine and pain present in the acute affection, but the patient's health becomes generally impaired, and there are pains felt in the perinæal region and down the thighs or in the supra-pubic regions. Pain is also experienced on a vaginal examination if the bladder be pressed on by the finger.

The urine is generally alkaline and phosphatic; it contains a quantity of mucus, decomposes rapidly, and has a very offensive odour. Gradually the bladder becomes contracted, and a smaller quantity is retained; later on, when the ureters and kidney are inflamed, uræmic symptoms may be present, and pus as well as mucus be detected in the urine.

Changes in the Bladder.—Congestion and epithelial desquamation are followed by thickening and rugosity of the mucous membrane and general thickening of the muscular and connective-tissues. The orifices of the ureters are first encroached on, and then the tubes are dilated and generally thickened. The disease travels slowly but surely backwards, the kidneys finally yielding to the pressure and distension, and in their turn becoming diseased. Ulceration and pus accumulation occur both in the bladder and ureters.

Course and Termination.—An acute attack of cystitis, due to cold or traumatic cause, if properly attended to, with rest and suitable medication, is generally amenable to treatment. Not so the chronic form. The prognosis is most unfavourable, chronic catarrhal cystitis being a most intractable affection, pursuing the course above indicated with all the attendant symptoms.

Treatment.—In acute cystitis the treatment will consist of:

Rest in bed, and warmth.

Demulcent drinks.

Milk diet.

Linseed tea, flavoured with clove.

Lithia, Salvator, soda, or potash waters may be given as drinks.

As medicines—

Decoction of pareira.

Infusions of buchu.

„ „ uva ursi.

„ „ scoparium.

These must be given in one-ounce doses, in combination with the tinctures of hyoscyamus, buchu, or uva ursi, with liquor potassæ, or potassium bicarbonate and ext. hamamelis liq. Large draughts of decoction of triticum repens are sometimes soothing.

A warm bath will occasionally relieve pain, and a morphia suppository may be placed in the rectum. An admirable mixture I find is

R. Liq. potassæ, ℥iss.
Tinct. uva ursi,
Tinct. buchu,
Tinct. hyoscyami, āā ℥ss.
Elixir saccharin. min. xxx.
Inf. scoparii,
Decoct. pareiræ, āā ℥iv.
℥i. three times in the day.

Either uva ursi or buchu may be substituted for the broom infusion.

The bowels must be regulated if necessary by an emollient enema, and such saline aperient waters as Friedrichshall, Pullna, Æsculap, Victoria, Rubinat, or Hunyadi Janos, may be given.

The oils of copaiba or cubebs or santal, in small doses, may be tried suspended in the *mistura amygdalæ comp.*, especially in those cases of a specific nature. In the latter stages the benzoate of ammonia may be taken in fifteen to thirty grain doses. The vegetable diuretic infusions may be discontinued, and the mineral acids commenced. Matico in infusion and tincture I have found useful combined with *hamamelis*. (Contrexéville is a water I have frequently given in vesical irritation with benefit.) The bladder should in all obstinate cases be washed out at least twice daily with some extremely weak antiseptic lotion, such as boric acid, carbolic acid, salicylic acid (a few grains to the ounce), or corrosive sublimate (1 in 10,000). This may be done with a double catheter and syphon-tube. Hæmorrhoidal conditions require attention. Uterine displacements should be rectified.

If general and local treatment fail, Emmet's operation of cystotomy to give the bladder rest through the creation of a vesico-vaginal fistula may be performed. He advocates this step strongly, going so far as to say that 'our means for curing cystitis are limited to a single procedure, that of vaginal cystotomy, and all other means yet known to us are but adjuvants.'

The operation consists in the following steps:



FIG. 265.—Represents the Electric Cystoscope. The size, character, and appearance of morbid growths in the bladder may be readily discerned by its means.

1. Placing the woman as described in the button-hole operation on the urethra.

2. Introducing a curved sound or a fenestrated staff of Harris into the bladder.

3. Seizing the projected vaginal tissue with a tenaculum in the middle line, which is then divided with a pair of scissors so that the sound may be passed into the vagina. The vesico-vaginal septum is then divided in the median line.

4. Uniting the vaginal and vesical edges by sutures, as before described.

Professor Pallen uses a Paquelin's cautery to open the bladder. Emmet disapproves of this method, inasmuch as there is risk in some cases of injuring the bladder or ureters. Afterwards the bladder is freely washed out through the opening with warm water. In due time, if the cure is complete, the fistula is closed.

STONE IN THE BLADDER.

The symptoms of stone are :

Frequency in passing water.

Pain principally felt after passing.

Presence of blood in the urine.

Presence of phosphates and mucus.

The stone is felt by the sound or finger.

Litholapaxy (Lithotrity at one sitting).—To Dr. Otis, of New York, we owe the teaching which has established the possibility of introducing large instruments into the bladder. To Dr. Bigelow we are indebted for the modern operation of crushing stone in the bladder, and removing the fragments at one sitting by aspiration. The operation is performed thus : The presence and size of the stone having been determined, the patient is placed under ether in the lithotomy position. If no urine be in the bladder, a few ounces of warm water are injected. The lithotrite is introduced,

and the stone is crushed. (The student is familiar with the more minute description of this step, and the details of the operation of lithotrity in the case of stone in the male bladder.) The large evacuating catheter is now introduced, and if urine is in the bladder it is withdrawn. The modern improved aspirator is then attached to the catheter, and about three ounces of warm water is injected into the bladder. With the outflow the fragments are received into the glass bulb attached to the aspirating bag. Larger fragments which remain are crushed and removed in the same manner. Other details of the operation, as, for instance, the method of seizing and crushing the stone, the removal of all the *débris*, the freeing of large particles, are the same as in lithotrity on the male. The woman may be given a warm hip-bath and an opiate some hours after the operation, if there is pain. Alkaline drinks are indicated, and any symptoms of cystitis attended to.

Vagino-Vesical Lithotomy.—If either from the size of the stone, the state of the bladder, or condition of the health of the woman, the operator wishes to perform lithotomy, an opening is made of sufficient size in the vaginal septum, and the stone is extracted. The bladder is subsequently washed out by the urethra, and the vaginal wound treated as a vesico-vaginal fistula.

Removal of Small Calculi by the Fingers.—Croom recommends that the fingers be used, in the manner shown in Fig. 266, for pushing small calculi from the bladder into the urethra, and through it from the meatus. If the urethra be dilated, this proceeding is facilitated. This plan is limited to stones no larger than the finger-tip.

Dr. H. Marion Sims' Treatment of Incontinence by Forcible Dilatation of the Bladder.

Dr. H. Marion Sims, of New York, reports several cases of incontinence of urine in young girls in which he practised forcible dilatation of the bladder with success. In all the patients the bladder was so con-

tracted that it held but a few ounces, or less ; in one case, that of a girl of thirteen years of age, it only held three-quarters of an ounce. The plan adopted by Dr. Sims is the daily injection of comfortably warm water into the bladder to the point of distension, increasing the quantity by half an ounce to an ounce each day until the retaining power of the bladder is improved, then it is practised every second day, and finally, once in the week. Dr. Sims succeeded in getting these patients to retain comfortably twelve and eighteen ounces. In some cases he combined the use of a mild faradic current applied to the neck of the bladder with the dilatation.

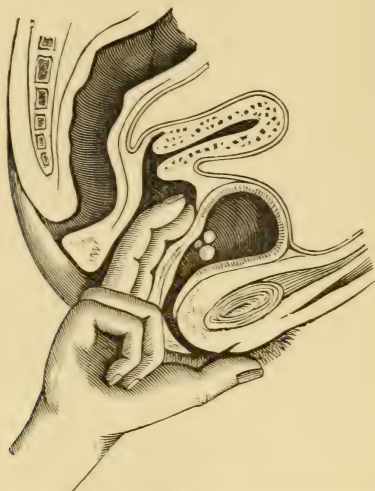


FIG. 266.—American Medical Register (Croom's procedure).

Dr. Alexander's Operation for Incontinence from Fistula.

Dr. William Alexander brought before the Gynecological Society, April 25, 1888, 'a method of treating incontinence of urine in the female in cases hitherto considered to be beyond the resources of surgery.' The principle of this method consists in conveying the urine into the rectum, and converting the anus into the permanent channel for its escape. The anal sphincters are thoroughly dilated ; the base of the bladder is pushed into the rectum with the finger, on which the rectal wall is divided, so as to form a communication between the bladder and rectum, into which one end of a vulcanide stud is inserted, so as that the flat head of the stud is in the bladder and the crew-end protrudes into the rectum ; on this the other end of the stud is screwed, and a permanent opening is thus secured between the bladder and rectum. The next step in the operation consists of com-

plete closure of the vulvar orifice by separating the labia minora from the labia majora all round, and turning the epithelial surface of the former towards the bladder, suturing these, and finally, completely closing the latter. This operation has given rise to a good deal of criticism ; but it must be remembered that the condition for which it is proposed is a desperate one, and if by it we can succeed better in closing completely the vulvar orifice, and that the diversion of the urinary stream does not make the woman's condition worse through rectal irritation, but better, this ingenious device of Dr. Alexander is worthy a trial.

CHAPTER XXIX.

A FEW OBSERVATIONS ON RENAL DISEASES.

I HAVE already repeatedly urged the possibility of committing an error in overlooking a renal affection, whether in the form of fluid accumulation or solid growth, when making an abdominal examination.

The enlargements from fluid are :

Hydro-nephrosis.

Pyo-nephrosis.

Renal abscess.

Peri-nephric abscess.

Suppurative nephritis.

Scrofulous kidney.

Simple cysts.

Hydatid cysts.*

The solid tumours are (Knowsley Thornton, 'Harveian Lectures,' 1889):

Simple Neoplasms—

		{	Inflammatory ;
			Simple ;
Fibromata ...			Cystic ;
Lipomata ...			Muscular ;
			Fatty.

Hæmatangiomata.

Osteomata.

Adenomata ...	{	Papillary ;
		Glandular.

* Any of these eight conditions may be complicated with calculus in the kidney or ureter.

Malignant Neoplasms—

Sarcomata (various kinds).

Lymph adenomata.

Carcinomata (various kinds).

Hydro-Nephrosis (congenital or acquired)—

Is a distension of the kidney with fluid caused by obstruction to the flow of urine. (Liable to be confounded with ovarian cystoma.)

Pyo-Nephrosis—

Hydro-nephrosis, accompanied by suppuration. (Very liable to follow calculus or traumatic puncture of the hydro-nephrotic cyst ; it may cause cystitis.)

Renal Abscess—

Generally the result of injury, calculus, or foreign body ; or it may follow the administration of cantharides or turpentine.

Peri-Nephric Abscess—

Abscess in the cellular bed outside the kidney.

(a) Primary and independent of the kidney ; (b) secondary to suppurative nephritis, renal abscess, or pyo-nephrosis ; (c) secondary to renal fistula and urinary extravasation and calculus.

Suppurative Nephritis—

Suppurative inflammation of the kidney, either of its pelvis (pyelitis) or of the entire organ (pyelo-nephritis). It is usually a secondary and acute inflammation, attacking both kidneys, and rapidly fatal.

Scrofulous Kidney—

Tuberculous degeneration of the kidney—generally both organs—ending frequently in abscesses (pyelitis or nephritis). The ureter and bladder are often involved.

Simple Cysts—

Spring from the cortex ; contents vary in character ; serous, albuminous, or of a colloid nature ; do not contain urine.

Hydatid Cysts—

Generally originate in the renal tissue ; occasionally from the subcapsular cellular tissue. May assume large size, and be mistaken for ovarian cystoma.

Fibroma—

A renal fibroma may assume an enormous size. Bilroth has removed one weighing 40 lb., and Sir Spencer Wells two fibro-lipomata weighing 16½ lb. and 14½ lb. respectively. They may degenerate into fibro-cystomata or fibro-lipomata.

Lipoma—

Originates in the adipose areolar tissue, and forces its way into the hilum of the kidney.

Hæmatangioma and Osteoma—

Very rare.

Adenoma—

(a) Papillary—more common as originating in the tubular and Malpighian capsules ; (b) are more frequent in the cortex. (Knowsley Thornton, in his 'Harveian Lectures,' describes a kidney which was affected with calculus and papilloma of the pelvic end of the ureters, causing hydro-nephrosis.)

Sarcoma—

Knowsley Thornton, in accounting for the recurrence (after removal) and malignancy of sarcoma of the kidney in children, and its non-malignancy in the adult, says : 'The difference is to be sought in the varieties of sarcoma most common in early life, and in the adult ; and, secondly, in the portion of the organ first invaded by the disease.' In children

Sarcoma (continued)—

he notices the prevalence of the cell element approaching the embryonic type ; the intercellular substance is soft and full of fluid. In the adult there is less of the cellular and much more abundant intercellular tissue, which is dense and hard, and of slower growth, the capsule alone being commonly attacked, while in children the entire renal substance is infiltrated.

Lymphadenoma—

Is accompanied by evidence of the disease elsewhere.

Carcinoma—

Encephaloid is the form most frequently met with ; next, schirrus ; and, lastly, colloid. Epithelioma is a ‘curiosity’ (Knowsley Thornton).

I have thus summarized the different enlargements of the kidney in order to press on the reader the necessity of being on his guard in arriving at a diagnosis in some cases of obscure abdominal tumour, and even in cases in which the nature of the disease seems at first sight obvious. Remembering that hepatic and renal tumours may both complicate and simulate ovarian uterine tumours, he must not forget so to investigate all suspicious cases, as to eliminate those sources of error that might perhaps lead up to a useless or fatal laparotomy. In the case of the liver, the evidences of hepatic disease (*vide* chapter on Ovarian Tumours) are to be sought for in the area, site, and connections of the tumour ; icterus ; emaciation ; sickness ; constipation ; and ascites. In the case of the kidney, we must, in addition to the local and constitutional evidences of renal disorder, most carefully examine the urine for the presence of albumen, pus, mucus, or *débris* of renal tubes and epithelium. I take these important diagnostic hints from

Mr. Knowsley Thornton's recent 'Harveian Lectures' as directly bearing on these remarks. As the conditions most nearly touching the province of the gynecologist, he thus speaks of hydro-nephrosis and renal tumours :

Diagnosis of Hydro-Nephrosis.—This is not always easy ; retro-peritoneal, omental, and mesenteric cysts are especially difficult to differentiate from hydro-nephrosis, and it has been a common error to mistake an ovarian cyst for hydro-nephrosis, or *vice versa*. It is also in some cases difficult to distinguish between hydro- and pyo-nephrosis. The position of the colon, curving across the tumour, is one of the best diagnostic points in renal tumours, giving a clear note on percussion over their inner border. Sometimes this is lost through the intestine being contracted and empty, but even then it can often be defined as a raised cord, which varies in shape under pressure. In very large tumours the bowel sometimes gets behind, and this sign is altogether lost. I have seen some retro-peritoneal cysts which it was quite impossible to distinguish from hydro-nephrosis till the abdomen was opened, and in one case I did not discover what the tumour was till I had enucleated a considerable portion of it, so exactly did it simulate a distended adherent kidney. There should, however, be no difficulty in differentiating a hydro-nephrosis from an ovarian cyst, and yet they are frequently mistaken for one another. In the former there is the position of the colon, the dulness going far back into the loin and under the ribs, and nearly always a clear line between the lower edge of the tumour and the iliac crest. In the ovarian cyst the dulness and fluctuation rarely go so high and so far back, and though its upper margin is often overlaid by clear intestine, there is not the same fixed curve of clear note, and the dulness extends down to the iliac crest and pubes. The ovarian cyst has usually more lateral mobility than the renal cyst. The pelvic examination alone will usually distinguish the one disease from the other. The hydro-nephrosis rarely becomes pelvic ; the ovarian tumour is nearly always more or less so. If the lower part of the hydro-nephrosis does enter the pelvis, its close connection with the bladder can be traced, while pressing up its abdominal portion does not affect the uterus, the exact reverse being the case for the ovarian cyst. Careful aseptic puncture far back in the loin and examination of the fluid removed are, however, the only certain means of diagnosis, at any rate in many of the cases.

Diagnosis of Renal Tumours : Differentiation.—The tumours most likely to be mistaken for renal tumours are : Retro-peritoneal cysts ; often quite impossible to diagnose from hydro-nephrosis. I have just operated upon a case at the Samaritan Hospital which illustrated this well, as I pointed out before operation. Omental cysts ; easier on account of the different relations of the bowel. On the right side, distended gall-bladder, when surrounded by adhesions, quite impossible to differentiate in some cases from renal tumour ; when free and mobile, its exact relations are easier to define. Enlargement of the spleen ; this ought not to be mistaken for renal tumour : first, there is the notch always to be found with careful search ; then there is the hard, sharp border,

quite different from any renal tumour ; then the percussion is dull to the very edge of the tumour ; the intestine never overlaps unless it is adherent, which is very rare. Ovarian tumour ; I have already pointed out the differences under hydro-nephrosis. I can imagine that a sub-peritoneal fibro-myoma uteri might be very difficult to differentiate from a renal tumour, when the latter was large enough to dip into the pelvis, but I have not seen such a case. I have operated upon solid sarcomata of the mesentery and retro-peritoneal cellular tissue, which it was quite impossible to distinguish from renal sarcoma till the abdomen was opened."

Temporary Disappearance of the Renal Swelling.—There is one point of importance in regard to certain enlargements of the kidney not to be forgotten, and which may both puzzle the practitioner and reflect unpleasantly on his opinion, viz., the chance of a temporary subsidence or disappearance of the tumour. This may happen in the case of hydro-nephrosis or pyo-nephrosis, when the fluid, which has been imprisoned by some obstruction—as, for instance, a calculus in the ureter—passes into the bladder through removal of the impediment, and a previously blocked ureter becoming pervious ; or it may occur in the instance of a movable kidney, the shifting or displacement of which may depend on posture or occupation.

Puncture of the Kidney.—‘An abundant experience of this very simple operation,’ says Greig Smith, ‘proves that it is too frequently allied to the experiment of introducing a germ-laden needle into the midst of a cultivation jelly.’ Thus he accentuates the care which ought to be taken to asepticize the needle-point and fill the puncturing-needle of the aspirator with some antiseptic fluid in making the puncture. In gynecological practice—which alone is what I am referring to—this step is undertaken both as a means of diagnosis and as a therapeutic measure, in order to draw off the fluid. Morris recommends as the point of entrance of the needle on the *left side*, ‘just anterior to the last intercostal space ;’ and on the *right side*, ‘a point half-way between the last rib and the crest of the ilium, from two to

two and a half inches behind the anterior or superior spine of the ilium.' The needle is to be directed sufficiently forwards to escape the kidney, but not so far as to endanger the colon and peritoneum. The greatest care must be taken when the fluid is escaping, and when the cavity is nearly empty, not to push the needle in further, so as to avoid the risk of wounding either the renal vessels or the peritoneum.

MOVABLE OR DISPLACED KIDNEY.—*Etiology*.—The inexperienced practitioner may be excused for overlooking an affection which is by no means of frequent occurrence, and the symptoms of which in the milder forms of displacement are often obscure. The fact, however, that movable or floating kidney is found much more frequently in women than in men (in the proportion of seven to one), and that it is still commoner in those women who have borne children than in the unmarried, in consequence, probably, of the greater laxity of the abdominal wall in the former class, invests this renal affection with special interest in the eyes of the gynecologist. Any prolonged or exhaustive drain on the system, which weakens the abdominal parietes and causes absorption of the circumrenal fat, is apt to predispose to loosening of the kidney. For example, I have at the present moment two cases of movable kidney under observation. One is that of an unmarried lady, who for years suffered from severe hæmorrhage from piles, and on whom about eighteen months since I operated for extensive internal hæmorrhoids; the other is a married lady, who has malignant disease of the liver and omentum, and who is greatly emaciated. A distinction has been drawn (Jenner) between 'movable' kidney and 'floating' kidney, the latter term being applied to that form of displacement in which there is a meso-nephron or fold of peritoneum attaching it to the vertebral column. This is by far the rarer variety of displacement. It is at times a congenital malformation. Displaced kidney may follow from shock, falls, blows, or other injury.

Symptomatology.—Both the signs and symptoms of renal displacement will depend upon its degree, and whether one or both organs are mobile. Those attending slight displacement are frequently so mild in character they may not arouse the suspicion of the surgeon as to the real cause of the temporary pain or distress which is only periodically complained of. It is well, therefore, when a woman complains of a constant or recurring pain in the lumbar region, which occasionally shoots up the side or down to the groin, and which is increased by exercise, to carefully explore the lumbar regions. This is best done by placing one hand under the kidney and the other in front below the last rib, and then making counter-pressure; this palpation is made while the patient is lying down. Keeping the hands still in this position, she now sits up on the couch or bed, when the kidney may be found to move down and come better within reach of touch. The tumour gives a characteristic mobile sensation to the hands, and such manipulation is generally attended with pain to the patient, and this often lasts for some time after the examination is over. There may be occasional attacks of syncope caused by the pain, which varies with the degree of mobility and the size of the kidney. After a time the organ may be, and frequently is, enlarged. Hydro-nephrosis or pyo-nephrosis may be present. Such an enlarged, hydro-nephritic, movable kidney I have been recently consulted for in a middle-aged woman. The tumour then may fill the space between the crest of the ilium and the last rib, and much of the previous mobility may disappear. In cases in which this displacement has lasted for some time the general health suffers more or less. The patient becomes nervous, and loses flesh more rapidly; the pain is more constant, constipation is frequently present, as are the other natural results of want of exercise and loss of appetite.

Diagnosis.—We have to differentiate displaced kidney

from tumour of the pancreas, tumour of the liver, gall bladder, pylorus, and omentum, or a fæcal tumour of the colon. But what is of still greater importance for the gynecologist to recollect is, that movable kidney, especially when enlarged, has been mistaken for ovarian cystoma, extra-ovarian cysts, hydro-salpinx, and pyo-salpinx. In any case of doubt, therefore, careful examination of the abdominal and pelvic viscera should be made before a conclusion is arrived at. The operation of nephrorraphy is not one to be discussed here. The principle of the operation is the fixation of the loose kidney by its capsule, which is exposed by a lumbar incision, to the margins of which it

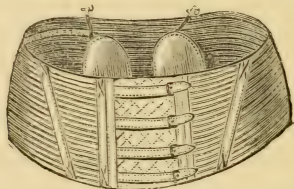


FIG. 267.—Abdominal Support for Use in Displacement of the Kidney.

is attached by sutures of catgut. (See the writings of Newman, Glasgow ; Greig Smith, Bristol ; Henry Morris, London ; and the discussion at the Leeds meeting of the British Medical Association, 1889.) This decidedly is not an operation to be advised or consented to, unless life is indirectly threatened by the pain or other symptoms arising from the displacement. On the other hand, much may be done by a suitable lumbar support, such as that here shown (Fig. 267), in which two rubber air-pads help to steady and control the kidneys. This belt is put on in the morning in the recumbent position, and is removed at night. The bowels should be attended to, and the costiveness, which induces straining, relieved. The patient must be cautioned against any sudden exertion, and the pain must be relieved by rest. The use of morphia should be avoided.

CHAPTER XXX.

STERILITY.

IN a manual such as this it is not possible to discuss at length all the causes both in the male and female which result in sterility. No one has investigated these causes in the woman with greater minuteness than the late Marion Sims. Again and again he has examined the mucus of the cervix uteri a few minutes after intercourse to determine the presence or state of the spermatozoa contained in it, or the quantity of seminal fluid retained in the vagina. He went so far in one case as to succeed in impregnating the woman by the injection of semen into the uterus, though the patient unfortunately miscarried at the fourth month from a fall. During two years he made as many as fifty-five uterine injections of seminal fluid.* Marion Sims has pointed out some important facts connected with sterility. We may thus summarize these :

In order for conception to take place it is not absolutely necessary for penetration to occur.† The spermatozoa will travel a considerable distance and live for several hours in a suitable medium and at a proper temperature. It is necessary that the seminal fluid should contain healthful active spermatozoa, that it should be retained in the vaginal canal, and, if possible, that ejaculation should occur in the axis of the cervix and of its opening.

* Artificial fecundation is not now resorted to by any gynecologist of position, though one writer, within the past few years, has tabulated the condition in which such intra-uterine injections of seminal fluid are indicated. (Mantegazza.)

† See page 9.

If healthful semen is deposited in the vagina within a few days before, and within ten days after, a menstrual act, conception is more likely to occur. To complete these conditions we require a sufficiently long vagina with due tonicity of its walls; the uterus to be as nearly as possible in its normal axis; the uterine and vaginal secretions healthful; healthful and vigorous spermatozoa; contact, at the right time, of the ovum with the spermatozoa.

We may thus classify the principal causes of sterility:

Congenital.

1. Absence of the ovaries.
 " " Fallopian tubes.
 Absence of the uterus.
 " " vagina.
 Very short vagina.
2. Atresia of the Fallopian tubes.
 " " uterus.
 " " vagina.
3. Imperforate hymen.
4. Conoidal uterus, stenosis and occlusion of the os uteri or cervix.

Acquired.

1. Strictured states of the Fallopian tubes.
 " " uterus.
 " " vagina.
2. Tumours obstructing the Fallopian tubes.
 " " uterus.
 " " vagina.
 " " vulva.
3. Displacements of the Fallopian tubes.
 " " uterus.
4. Inflammatory states of the genital tract—especially chronic endometritis.
5. Chronic metritis.
6. Disease of the ovaries.

7. Ovarian dysmenorrhœa.
8. Membranous dysmenorrhœa.
9. Menorrhagia.
10. Dyspareunia—painful intercourse from any cause.
11. Vaginitis and vaginismus.
12. Gonorrhœa and its consequences.
13. Syphilis (in the sense that it destroys the vitality of the ovum).

*In the Male.**

1. Spermatozoa rendered unhealthy by masturbation, excessive debauchery, and too frequent intercourse.
2. Syphilis.
3. Congenital defects in the testes, or disease and malposition.
4. Stricture of the urethra.
5. Urethral fistula.
6. Absence of sexual desire and orgasm.

The reader will refer to the chapters in which each of the above-mentioned causes of sterility in the woman is discussed.† Only one caution I think it well to give the young practitioner. I would say to him: ‘Do not be led away by the miraculous cures of sterility you hear of, or the occasional success you may yourself meet with in rectifying some obstruction to impregnation, to hurriedly perform operations on the uterus with a view of “curing sterility.” Bear in mind, in the first place, that failure will attend a large proportion of such operations. The patient should be frankly prepared for this. Remember also that serious consequences often follow these uterine operations,

* See page 568. It is very doubtful how far, in a woman capable of procreation, mere contraction of the lumen of the uterine canal is to be regarded as a cause of sterility—probably very seldom.

† See especially the chapters bearing on dysmenorrhœa, dilatation of the cervix, stenosis of the cervix, congenital malformations, gonorrhœa, and vaginismus.

though we do not hear of them, and that barrenness has all its evils aggravated ten thousand times, when the miserable hypochondriac passes from hand to hand, the victim of delusive hopes and disappointing operations.' Far otherwise is it when some diseased or abnormal condition of the uterus exists which it is our duty to treat by operation, and the cure of which may bring about a possibility of impregnation. Nor do I mean to deprecate any justifiable and judicious interference with an otherwise healthful woman who happens to be barren, in order to bring about conception. But I do mean to insist that the surgeon incurs a grave responsibility who operates on a woman otherwise in perfect health, as many barren women are, if there follow either directly from the operation or indirectly from the results, dangerous or permanently serious consequences, even though she and her husband may accept any risk entailed by the operation.

The possibility of the cause of the sterility resting with the husband, and not with the woman, has to be remembered. The fact that many women who are barren with one husband are fertile with another, is not to be overlooked. This fact alone should lead, in cases in which obviously there is no apparent cause on the woman's side, to inquiry into the general health of the man. It must be also remembered that the general health in both the woman and the man has a potent influence on fecundity. Gross has estimated that one male in every six is sterile. This is probably too high an estimate. It is certainly much higher than the estimated sterility of women. There may be *incompatibility* of the sexes, and sterility as a result, though neither the man nor woman is sterile, for either separately may be fertile to another person and procreate.

CHAPTER XXXI

AFFECTIONS OF THE RECTUM AND COCCYGODYNIA.

THE affections of the rectum in women which the practitioner is called on to diagnose and treat are :

Proctitis.

Impaction of fæces.

Hæmorrhoids, external.

„ internal.

Fistula.

Abscess.

Simple ulceration.

Fissure.

Stricture.

Malignant disease :

Epithelioma.

Scirrhus.

Encephaloid.

Colloid.

Melanosis.

Syphilitic disease :

Various cutaneous affections of the anus.

Ulceration.

Stricture.

Pruritus ani.

Foreign bodies in the rectum.

Procidentia.

Polypus.

Rodent ulcer.

I deem it of use to the practitioner to introduce some remarks on the more commonly occurring forms of these diseases.

Examination.—To examine the patient for rectal disease, place her on her right side, with the knees well drawn up. Previously administer, or have administered, an enema. In cases where there is excessive sensitiveness, or where a thorough exploration is required to diagnose the presence and extent of malignant disease, painful ulcer or fissure, an anæsthetic should be administered. The necessity is clear to examine the rectum with the finger and speculum, if there is—

A sense of fulness and pain in the neighbourhood of the anus.

Pain on defæcation.

Prolapse of the bowel.

Hæmorrhage.

Discharge of any kind.

Without an anæsthetic, after an enema is administered, the patient can be made to expose the bowel better by bearing down, and thus the practitioner can touch with the finger a higher spot in the bowel. *He must trust to the education of the finger in examinations of the rectum rather than to the assistance gained from any speculum.* He should learn to recognise by touch the uneven and roughened feeling of ulceration, the characteristic hardness of malignant disease, the smooth but tense feeling of hæmorrhoids, the contraction the result of stricture, the chink of a fissure, the peduncled attachment of a polypus, and the internal aperture of a fistula. Above all, he must not be misled by the common statement of a patient that she suffers from ‘bleeding piles,’ and be satisfied with her assurance on this point, even though she tells him that she has been under treatment for piles. It has fallen to my lot to see patients

who never suspected there was anything more serious than a hæmorrhoidal state of the bowel, yet, on examination, advanced malignant disease has been discovered, or more frequently a fissure or ulcer. The dilatation of the sphincter is easily affected under an anæsthetic, and when this is done, which it should be slowly and without force, we can, with a suitable speculum or retractors, completely explore the rectum. Simon's method of examination has already been referred to (page 73).

I cannot deal exhaustively, in a manual of this nature,

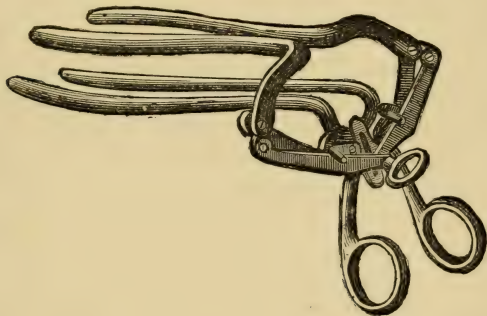


FIG. 267a.—Four-bladed Rectal Speculum.

with the treatment of the several affections of the rectum which I have enumerated.

A few general observations, however, regarding affections of the rectum which we have to treat in women, I think it desirable to make; and though some of these are not specially applicable to women, still they are all of such importance that I cannot refrain from insisting here on the necessity for observing the rules and precautions included in this brief chapter.

SOME GENERAL CONSIDERATIONS.

Pruritis ani may be treated on the same principles as those followed in the management of *pruritis vulvæ* (see Chapter on *Pruritis Vulvæ*). Any irritating and dirt-collecting fringes of skin which surround the anus must be cut off.

Ulceration of the Rectum and Stricture.—It must be remembered that fissure and ulceration of the rectum are frequently met with in women, both being complicated by such affections of the uterus as endometritis and sub-involution, laceration of the cervix, versions and flexions. Operative interference with rectal disorder is certain to prove unsuccessful as long as the uterine complication remains unrelieved. If a woman complains of vesical irritation, with rectal distress and pain, both on defæcation and micturition, and no uterine condition is present to account for these symptoms, the rectum should be carefully examined for fissure or ulcer. Nor should we be led astray by the proofs of existing cystitis, as a chronic cystitis is not uncommon in women who suffer from rectal disease. The treatment of painful ulcer or fissure resolves itself into palliative and radical.

Under the head of palliative we include rest, due attention to, and regulation of, the bowel, the administration of mild laxatives, such as any of those already recommended, to secure an efficient but gentle aperient effect; the use locally, either in lotion or ointments, of sedative and astringent drugs, as opium, morphia, belladonna, bismuth, calomel, tannic acid, hazeline, perchloride of mercury, and nitrate of silver; in severe cases, the careful application

to the ulcer of either the acid nitrate of mercury or nitric acid. The radical treatment consists in operation by incision through the entire base of the ulcer and fissure, with the division of the fibres and the underlying sphincter.

The more we reflect on the insidious progress of rectal disease, the obscure and in many instances remote symptoms which attend incipient ulceration, stricture, or malignant disease, as well as the reflex disturbances which are apt to divert our attention from the rectum to some other organ, the more necessary the injunction to the medical adviser to look to the rectum when such symptoms as those of dysenteric and morning diarrhoea (jelly-like discharge), colicky pains and tenesmus are complained of. The practitioner should recollect that frequently the ulcer, or commencing stricture, is not close to the anus, but some two, three, or four inches from its margin, so that the examining finger has to be passed well up the bowel before the ulcer or stricture is detected. Women suffer, of the two, more than men from stricture of the rectum. It would seem from statistics that constitutional syphilis in women, if it affect the rectum, is particularly liable to cause stricture.

Verneuil's operation of division of the entire stricture, or linear rectotomy, is that most frequently practised. In dilatation of a stricture, soft, bulbous-pointed, hollow bougies may be used; the surgeon should have some of these of different sizes by him; and it is by far the safest plan for the surgeon to dilate the stricture rather than permit the patient to pass the bougie herself. The larger sizes of my uterine bougies will be found to answer well for the surgeon's use. They must be used with gentleness.

I may here say that I think the student had better be taught that muscular 'spasmodic stricture of the rectum'

is a very doubtful affection, and, further, I believe that in many of these cases of so-called 'spasm' we have simply a neurotic reflex irritation (that there is no real stricture to necessitate dilatation is at once proved by an anæsthetic) which causes a tonic contraction of the sphincters, generally exaggerated by the presence of hard, dry and impacted fæces.

Malignant Disease.—The most prominent symptoms of malignant disease are : pain on defæcation and after it; the presence of blood, both on the stools and after they are passed ; sometimes there is a semi-watery discharge, with a peculiarly heavy and fœtid odour. On examination there is the characteristic hard feeling, the extent of the roughness, or the 'broken-down' sensation, being dependent upon the nature, duration, and extent of the disease. But the most important feature of this terrible affection for the young practitioner to keep before him is, the very insidious nature of its onset, and the comparatively trivial symptoms which may accompany the first stages of the disease.

A fine, healthy-looking young man came into my study, to consult me for piles. On taking his history my suspicions were aroused. I made an examination, and, to my surprise, I found extensive ulceration and a typical malignant stricture, about three inches from the anus. I had an anæsthetic administered the next day to confirm my diagnosis and determine the feasibility of operation. I found there was no chance of any operative interference. He lived for a little over four months from the day I first examined him. He had been using remedies for supposed hæmorrhoids for nearly five months previous to my seeing him.

The prolongation of life or relief of symptoms will depend on the extent, number of adhesions (to vagina or uterus), and situation of the disease. Life may be prolonged by extirpation of the rectum, or colotomy.

Pain may be mitigated by opiates given internally,* and other sedatives; the administration of morphia subcutaneously; opiate injections into the bowel; morphia suppositories; and the unpleasant odour controlled by the free use of disinfectants and antiseptics. A thymol injection helps to conceal the odour. I have found some benefit result from the administration of Chian turpentine.

Abscess and Fistula.—1st. All abscesses about the region of the anus and perinæum should be opened early (with ordinary antiseptic precautions).

2nd. Be careful (in women) of too free division of the sphincter in operating for fistula—most unfortunate consequences from difficulty of retaining flatus or fæces may be the result.

3rd. Be rather over-cautious in operating for fistula when it complicates tubercular phthisis; but if the case be not far advanced, and with returning strength, the propriety of operating should be considered.

Hæmorrhoids.—As a rule, unless there are very urgent symptoms, it is better not to operate on pregnant women for hæmorrhoids. Allingham's remarks on the subject of operation for hæmorrhoids when there is a version of the uterus are so important that I quote them: 'In women suffering from a retroverted or anteverted uterus, an operation for piles is very undesirable, and will most certainly end in disappointment unless the uterine complication be attended to at the same time, or what is better, prior to the operation. My experience warrants me in saying that if you can restore the uterus to its normal position and size, you will find that the rectal affection will soon become a

* See discussion on cancer of the rectum, Leeds meeting of the British Medical Association, 1889, for valuable information on the indications for, and method of, operation.

comparatively small matter. In my earlier operations upon women I did not take into sufficient consideration the condition of the uterus. I could relate many cases in which I was most grievously annoyed to find that the patient did not recover as I had anticipated she would have done. I have found that if the wounds heal there is but little relief afforded, the same bearing-down and distressing sensation exists as it did before the removal of the piles. More commonly, the wounds do not heal, and very painful, unhealthy ulceration follows; this will never get well as long as the abnormal condition of the uterus remains.' With regard to choice of operation for hæmorrhoids, I decidedly believe, if it even be considered somewhat old-fashioned, that the safest operation and most satisfactory is the ligature. For twenty years I have never had occasion to regret operating by means of the ligature, both as regards the effectiveness of the cure and the freedom from hæmorrhage. I am aware that the clamp is a cleaner, more rapid, and equally effective method (especially the new clamp, see p. 584), used after the 'crushing' method of Mr. Pollock), but to the practitioner, operating on women with relaxed tissues, and large venous hæmorrhoids, and perhaps living at a distance from the operator, I would say operate by the ligature. The best silk is the strong non-absorbent, such as is used in the operation of ovariectomy. No matter how brilliant and pleasant be the results in the large proportion of cases with the clamp, or clamp and cautery, the surgeon may in some unexpected case be caught, and find it difficult if not impossible to stop the hæmorrhage. 'I do not think,' says Allingham, 'in the whole range of surgery there is any procedure worthy the name of "operation" which can show a greater amount of success or a smaller death-rate than the ligature of internal hæmorrhoids.'

Of 4,013 cases of hæmorrhoids ligatured at St. Mark's

Hospital, there were five cases of tetanus and one case of doubtful pyæmia. The death-rate from all causes in operation by ligature in the hospital during a period of over forty years was 1 in 670; four of the five cases of death from tetanus occurred during a year (1858) when tetanus was rife in London.

The occurrence of the menstrual period must be inquired into before operating. It is not prudent to operate on the rectum when menstruation is approaching; we should select the time between two periods.

It is well to remember that procidentia of the rectum is at times associated with polypus; and the practitioner should be careful not to mistake these states for hæmorrhoids. Procidentia occurs perhaps more frequently in women than in men, and often increases to a large size. Dr. Van Bruen adopts a most efficacious plan of treatment. Longitudinal strips are made in the protruded intestine with a Paquelin's cautery, avoiding the large veins, and then the operator returns the intestine, having first *oiled it well*. After return of the bowel, he secures further contraction of the anal aperture by division of the sphincter with the Paquelin's knife in two places, and stuffs the wounds with oiled wool. Longitudinal and circumferential contraction is the result.

If a *polypus* be discovered in the rectum, torsion or ligature will be sufficient to remove it without danger.*

RECTAL THERAPEUTICS (GENERAL HINTS).

Sedatives and Soothing Remedies.—Great relief from rectal pain, from proctitis, or inflammatory hæmorrhoids, or threatening abscess, is often secured by the application of leeches round the anus. Or we may pinch up the distended pile, and passing a bistoury through it, squeeze on the clot. A warm toast poultice is a ready and grateful form of stupe

* Rectocele has been already referred to—see p. 250.

to apply when the leeches are removed after incision of a pile. A piece of thick toast is made, on which boiling water is poured; the toast is squeezed between two plates, so as to press out the water; it is supported on a handkerchief, or covered with a piece of oiled silk, laid over the perinæum, and maintained in position by a T-bandage. A piece of *spongio piline*, used as a stupe, or for the application of sedatives to the anus, is a cleanly and ready means of relieving pain. When recovering from a prolonged attack of typhus fever, I suffered from severe proctitis, which terminated in abscess. The only relief I had from pain was from small injections of very hot water, with a little laudanum added, and given at frequent intervals. The warm sit-bath is often very comforting to a patient, or the steam of laudanum water placed in the night-chair on which the patient sits. Hazeline is an admirable astringent remedy, both when given internally and applied externally for hæmorrhoids. Both the glycerols of tannin and of lead are useful external applications for fissure and hæmorrhoids. Goulard's lotion, in combination with the liquid extract of opium, is a capital sedative in hæmorrhoidal congestion and in ulceration.

Aperients.—In the instance of women suffering from external hæmorrhoids, the diet should be carefully regulated, and scrupulous cleanliness insisted on after stool; mild laxative medicines should be used, and such cholagogues as podophyllin, iridin, euonymin, with small doses of mercurial pill or hydrarg. cum creta. The aperient waters, Rubinat, Æsculap, Victoria, Hunyadi Janos, Friedrichshall, Carlsbad, may be given. The compound powder of liquorice is also a useful aperient for women. Also this mixture:

R Ext. cascara sag. liq. ʒi.*
Glycerine ʒi.†
Aq. ad ʒviii.

* The cascara bonbons, or the cascara tabloids of Burroughs and Wellcome, especially the latter, are most efficient modes of giving cascara. One or two at bedtime.

† Spirit of saccharin ʒii. well takes the place of glycerine, or the elixir of saccharin ʒi.

℥ss. to be taken every morning early, and a little warm tea or coffee afterwards.

Such a pill as the following will generally be found to act sufficiently.

℞ Pulv. iridin,
 „ euonymin, āā gr. $\frac{3}{4}$.
 Hyd. cum cret., gr. i.
 Ext. col. co. gr., iss.
 Ipecacuanhæ.
 Ext. hyoseyami., āā gr. ss.
 Ft. pil.

Or, ℞ Pulv. euonymin, gr. i.
 Pil. hydrarg., gr. i.
 Pil. rhœi. comp., gr. ii.
 Ext. nucis vom., gr. ss.
 Ext. hyoseyami., gr. ss.
 Ft. pil.

Or, ℞ Ext. belladonnæ, gr. ss.
 Ext. nucis vom., gr. ss.
 Pil. col. co., gr. iii.
 Ext. hyoseyami., gr. ss.
 Ft. pil.

The confections of sulphur, senna, and black pepper are useful laxatives, especially the latter. A good form is

℞ Tartr. potassæ acid, ℥ii.
 Pulv. jalapæ, ℥i.
 Confect. sulphuris, ℥i.
 „ sennæ, ℥iss.
 „ piperis nigræ, ℥ss.
 Mel. opt., ad ℥iv.
 Ft. confectio; ℥i. as a dose.

Ointments.—Hazeline; calomel ointment, with bismuth and belladonna; liq. plumbi subacetatis; ointment of bismuth with glycerol of lead; ointment of tannic acid, with bismuth and opium, will be found soothing applications.

In cases of ulceration of the rectum, or fissure, ointments of bismuth* (℥ss. of carbonate in ℥ii.), calomel (℥ii. in ℥ii.),

* ℞ Bismuthi trisnitratis, ℥iii.; Hydrarg. subchlor., ℥iii.; Ext. belladonnæ, gr. xxx.; Ext. opii. liq., ℥ii.; Ungt. Sambuci, Adepis Benzoatis, āā ℥ss. To apply with the rectal positor.

morphia (gr. iii. ad gr. v. ad \bar{z} ii.), belladonna (gr. xxx. in \bar{z} ii.), pulv. opi. (gr. xx. in \bar{z} i.), may be used separately or in combination. Iodoform may be applied in the form of ointment, internally, to the bowel, or dusted, externally, in fine powder diluted with starch (gr. x.—xxx. ad \bar{z} ii.); calomel or bismuth ointments, in combination with belladonna, opium, and tannic acid, are useful ointments for internal hæmorrhoids. In syphilitic cases) especially, the iodoform ointment, or ointment of perchloride of mercury (gr. ii. to gr. v. ad \bar{z} i.), is most useful.

To apply ointment to the rectum, an ointment positor is required, as otherwise the ointment is wiped off the surface of the finger before it reaches the part. Fig. 268 shows the ordinary ointment applicator.

Astringents.—Tannic acid, gallic acid, acetate of lead in ointments; injections of matico and oak-bark; solutions of



FIG. 268.—Ointment Applicator.

carbolic acid, chromic acid, nitrate of silver. Perhaps the best local astringent in cases of rectal hæmorrhage is the sulphate of iron, which may be used either in the form of ointment (\bar{z} ii. ad \bar{z} ss.), suppository (gr. ii. ad gr. x.), or as the liquor ferri sulph., diluted according to the strength required.

Caustics.—The acids, nitric, carbolic, and chromic, and the acid nitrate of mercury, are the most powerful caustics we can apply both to ulcers or bleeding mucous surfaces; of these the acid nitrate of mercury is probably the best. The surface to be touched should be carefully exposed, and the acid applied with cotton-wool or with a Playfair's probe. The part is well oiled after the application. For all cases where the actual cautery is required, the best instrument to use is the thermo-cautery of Paquelin.

SOME MINOR OPERATIONS ON THE RECTUM.

The appliances necessary for the ordinary operative measures required in affections of the rectum are :

A few specula.

Rectal probes and director. (Fig. 269.)

Pile scissors, flat and curved. (Fig. 270.)

„ forceps. (Figs. 271, 272.)

„ hook. (Fig. 273.)

Straight spring scissors. (Fig. 274.)

Blunt and probe-pointed bistouries.

Curved scissors.

Clamps.

Strong silk ligature.

Torsion forceps.

Excision of External Hæmorrhoids.—This is best effected with the straight spring scissors ; the pile is simply snipped off ; if they be resolved into loose tags of skin which fringe the anus, they are seized and cut off in the same way. The practitioner must be careful not to cut away too much integument, or remove several of these tags at the same sitting, lest serious contraction of the anal orifice result. If a woman is suffering severe pain from a congested and inflamed pile, incise it. Pinch it up with the thumb and forefinger, steady it, and pass a curved bistoury through it.

To Ligature Internal Piles.—Having regulated the patient's bowels for a few days previously, have an enema administered early on the morning of the operation. An anæsthetist, assistant, and nurse are required. Have the patient brought well to the edge of the bed and placed opposite a good light. Place a folded sheet and waterproof under the buttocks. When she is fully anæsthetized, dilate the sphincter well and thoroughly expose the piles. Cleanse

the surface of the exposed bowel. Decide the number of ligatures which it is necessary to apply. On a chair or small

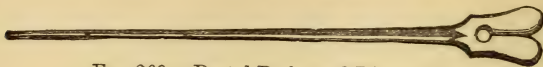


FIG. 269.—Rectal Probe and Director.

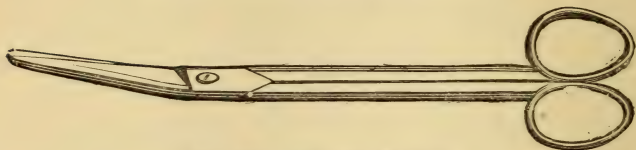


FIG. 270.—Flat Pile Scissors.

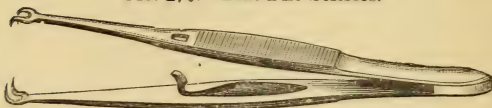


FIG. 271.—Pile Forceps.

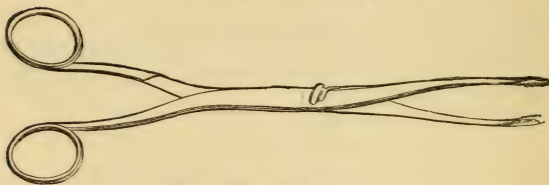


FIG. 272.—Pile Forceps.



FIG. 273.—Salmon's Pile Hook.

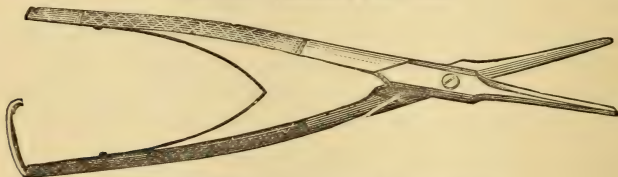


FIG. 274.—Straight (Spring) Pile Scissors.

table at the side of the operator or assistant should be—

Some ready-cut ligatures.

Pile-scissors.

Curved and flat scissors.

Torsion forceps.

Bulldog forceps.

Pile-fork and pile-forceps.

The nurse has alongside her some carbolized water, convenient-sized sponges, and a few sponge-holders.

Each pile (commencing with those nearest the anal aperture) is seized with the fork and drawn well down and out from the coat of the intestine; the pile-scissors is now laid flat against the rectal tunic, and the blades are made to embrace the sides of the hæmorrhoid, the blunt points of the scissors not quite reaching to the summit of the pile, and leaving its upper connection with the bowel free. With a stroke of the blades the division of the tumour is effected. The surgeon, laying down the scissors, transfers the pile-fork to his assistant, and taking a ligature, carries it well up to the upper angle of the wound he has made. He next secures this ligature firmly with a double or triple knot, and cuts off one end close to the pile. The pile is now removed, not too close to the ligature, lest the latter be cut. He proceeds in the same manner with each pile. Any spurt-ing vessel he secures with a torsion forceps, or if necessary a carbolized catgut ligature. He next inspects the anus, and removes any superfluous folds of skin with the scissors. The part should be sponged with some carbolic lotion, and a T-bandage with a thymol pad applied over the perinæum. An opiate is administered, and the bowels should be kept quiet for at least four days after the operation. Ligatures generally come away on the seventh or eighth day, and if not spontaneously or with a motion, do so when gentle traction is made on the strings. The patient had better remain in bed until the ligatures separate, and after this she may lie on a sofa for a few days before moving about.

Clamp and Cautery.—After the remarks I have made on

the 'clamp and cautery' method of removing piles, I do not intend to enter into the details of the operation. I have on a few occasions used Allingham's small clamp and Paquelin's cautery without any bad result. The preliminaries are the same as for operation by ligature; the pile is brought down, secured by the clamp, and then it is cut off with the bent scissors, the cautery being applied at a dull heat.

[For special information on this method of operating, see Mr. Henry Smith's article (p. 839), in Holmes's 'System of Surgery.' Mr. Smith is a warm advocate of this method of operating.]

To Mr. Pollock, of St. George's Hospital, we are indebted for the suggestion to remove piles by crushing (Fig. 275). The



FIG. 275.—Clamp for crushing Hæmorrhoids.

steps of the operation are as follow: The sphincters are first dilated. The pile is drawn into the clamp, and is crushed by tightly screwing up the bar of steel, and keeping it thus applied to the pile for the space of half a minute. The projecting portion of the pile is removed with scissors. There can be no doubt that crushing is, generally speaking, an expeditious, safe, and comparatively painless method of removing piles. Still, I maintain that we are not safe, in a certain percentage of cases, from the risk of hæmorrhage, and I repeat that in the case of large hæmorrhoids, and when the patient lives at a distance, the practitioner and patient are safer with the ligature.

To Plug the Rectum for Hæmorrhage.—The following

method of plugging the rectum, advised by Allingham, will be found by far the best. A good-sized conical-shaped sponge is secured by passing a piece of strong silk ligature through its apex. The sponge is then wet and squeezed dry, and the interstices filled with alum or sulphate of iron. Guided by the forefinger of the left hand, the sponge with the conical end up is pushed well into the rectum for the extent of five inches, and the silk cord hangs from the anus. The space below the sponge is now filled with cotton-wool, on which is sprinkled more of the alum or sulphate of iron. The ends of the string hanging from the anus are now taken in the left hand, and traction is made on the sponge while the cotton-wool is pressed up against it with the finger of the other hand. The effect of the counter-pressure is to spread out 'umbrella shaped' the sponge, and to compress tightly the wool. This plug may remain in for a period of from eight days to a fortnight. If a patient is troubled with wind, a flexible catheter may be introduced through the wool and sponge or at the side, and this prevents any troublesome flatulence. Opiates at the same time should be given.

Impaction of Faeces; Faecal Tumours.—Experience has taught me how extremely careful we must be in cases in which obscure abdominal symptoms are present, not to overlook the possibility of a faecal accumulation in some portion of the intestine. I have known a faecal tumour mistaken, through the signs and symptoms it causes, for ascites, malignant tumour, ovarian dropsy, and aneurysmal enlargements of the abdominal aorta. Many times I have seen faecal accumulations in the rectum, the result of habitual neglect of the bowel in women, aggravate, if they have not brought about, various forms of uterine disorder; and, though it may be most misleading to the practitioner, the presence of a faecal accumulation in the bowel is quite consistent with semi-liquid motions and a certain degree of response

to laxative or aperient medicines. In one of the most remarkable cases I have ever had under my care, the patient, who suffered from hæmatemesis and hæmorrhage from the bowel, and who had a large pulsating mass, which was easily seen and felt in the umbilical region, continued for months to pass liquid and semi-solid motions, and medicine seldom failed to act, though there were frequent attacks of violent vomiting. There were, it is true, occasional attacks of impaction of fæces in the rectum most troublesome to overcome, and local interference was necessitated with the finger and scoop to remove the masses. The patient's weight was reduced over three stone. Ultimately and unexpectedly, when different opinions by competent authorities who saw the case had been given, and various surmises as to the cancerous, aneurysmal, and other nature of the tumour had been expressed, the patient passed, after a bolus of calomel was given, and other aperient medicines had failed to operate, enormous masses of clay-like fæces, and from that moment the pulsation and tumour disappeared, and the patient recovered. I was myself amazed at the quantities which came away in this case. Of course if such a tumour as that I have spoken of existed in the rectum and within reach of the finger, there would be no excuse for error; but if the mass is in the cæcum or transverse colon, and lies in the neighbourhood of the aorta, considerable difficulty in diagnosis may arise. Fortunately, in the case I refer to, and which was attended with me by Dr. Hobart of Cork, we neither of us committed ourselves to a definite diagnosis, as we were both uncertain of the presence of a fæcal mass, and yet did not wish to pronounce absolutely as to the nature of the case, though the pain, emaciation, vomiting and discharge of blood from the bowel, the pulsation and deep-seated nature of the tumour, and the occasional free passage from the bowel, made us lean rather to the side of

malignant disease. This case, with others of a somewhat similar character, taught me a lesson which has not been thrown away.

On several occasions, when there have been urgent symptoms of obstruction, I have emptied the rectum of hard masses. In a case to which I was called by Dr. Thomas Neville, I dilated the sphincters thoroughly under chloroform, and removed the masses with my hand. In another, occurring a little time previously, the patient was suffering from fissure, and had encouraged the accumulation of an enormous mass of hard fæces rather than permit the bowel to move. I administered chloroform and dilated the sphincters, removing the masses with my hand, using, as I always have done in such cases, a large enema of almond oil and thin gruel immediately afterwards. In another most interesting and obscure case of suspected abdominal tumour, under the care of Dr. Stephen Jones, of Loose, I emptied the bowel in the same manner. The patient was permanently relieved. The student or practitioner can draw his own conclusions from the outline of such cases. Twice I have removed from the rectum foreign bodies which have caused obscure symptoms; in one case a fish-bone, and in the other a portion of wood, was the offending tenant. The possibility of this cause of rectal or ischio-rectal abscess should not be overlooked.

Thorough dilatation of the sphincters I have already alluded to as a preliminary step in the treatment of obstinate and chronic costiveness.

Fistula in Ano may be operated on by elastic ligature (known as 'Dittel's'), introduced by Prof. Dittel, of Vienna, but better by the knife. Cure may be attempted by the galvanic cautery, or by such means as dilatation of the sphincters and the application of carbolic acid or chloride of zinc to the fistulous canal, while the external orifice is kept open with a drainage-tube. Allingham recommends

for the purpose a shirt-collar stud, and he has also devised a simple and ingenious hook for drawing the ligature from the bowel through the fistula (Fig. 276). In ninety of his cases, the average time the ligature took to cut through was six days. The advantages are that we avoid the infliction of much pain, and the patient can move about. As regards fistula, I would broadly lay down these rules :

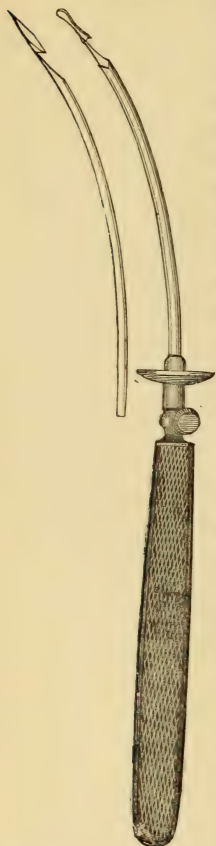


FIG. 276.—Ligature Tractor.

(1) Do not be tempted to temporize with a fistula, complete or incomplete ; delay, in the large proportion of cases, only leads to more extensive burrowing, and renders the inevitable division of the fistula a more serious step.

(2) Remembering the caution already laid down with regard to women, be on the safe side, and divide a fistula thoroughly with the sphincter muscle.

(3) In operating we cannot make too careful search for by-channels and burrowing sinuses in the track of the parent canal. Open these also freely.

(4) Make a blind internal fistula complete, and divide the sphincter.

(5) Dry wool, or wool with a little weak thymol ointment, is the best dressing after operation. Do not overdo dressing ; it is apt to irritate and create discharge or delay the

healing process. A little weak Condylar-water will keep the part clean.

COCCYGODYNIA.

By coccygodynia we understand a painful affection of the coccyx and perinæal structures, which principally shows itself in painful sitting and pain in the act of defæcation. The structures involved are: the coccyx, the sacro-coccygeal ligaments, and the perinæal muscles attached to the coccyx:

Causation.

- Traumatic { Blows, kicks, or falls on the coccyx.
Difficult parturition.
Instrumental delivery.
Horse exercise (Scanzoni, Goodell)
Hysterical temperament.
Rheumatism.
Uterine and ovarian disease.
Rectal disease.
Constant sitting.

I have, however, seen severe coccygodynia present in an unmarried woman in whom not one of the causes enumerated above could be traced. I had attended her some time previously for a severe attack of erysipelas of the face. From this she perfectly recovered. There was no rectal, uterine, or other local trouble. She was not, in the least, of an hysterical or nervous temperament. She had no sedentary occupation, and had no horse-exercise. At first her sister came to consult me, telling me that the patient thought she suffered from internal piles, and was averse to seeking advice, but that the difficulty in sitting had become so great she could not come to meals, and she was anxious I should see her. The pain had come on gradually. The discomfort produced by examination of the rectum, or any pressure on the coccyx was inconsiderable, and yet she could not sit without great suffering. In

this case, up to the time I last saw the patient, relief was afforded by sit-baths, counter-irritation over the coccyx, anodyne liniments, and suppositories, a rectal plug, which was worn at night, and the internal administration of bromide of potassium with nux vomica.

Treatment.—If palliative treatment does not cure the patient the subcutaneous division of the coccygeal ligamentous and muscular attachments may be proposed (Sir J. Simpson), or extirpation of the bone itself can be carried out (Nott). In deciding on any radical step, such as subcutaneous section or removal, we will be influenced chiefly by the decision as to the traumatic character of the affection; it is in those cases of partial dislocation or other injury of the bone that extirpation is especially indicated. The important practical rule to adopt in any case in which we are consulted for 'painful sitting' or symptoms of coccygodynia is to carefully exclude any uterine, vaginal, perineal, or anal affection which might account for the pain, and the removal of which will often relieve all the distressing symptoms.

As bearing on the obstinate nature of this affection and its persistence under all treatment, I may instance a case I have seen, with Dr. Gostling of Worthing. The lady fell and fractured the coccyx. This caused the coccygodynia, which was of a most aggravated and agonising nature. After trying various remedies without avail, Dr. Gostling, by my advice, removed the coccyx. Still the pain continued, for which morphia had to be given. The least touch of the finger on the part caused a shrinking and pain. Subcutaneously the structures for a short distance from the end of the sacrum were divided, and still the pain and inability to sit remained. Finally it was decided to apply the actual cautery over the origin of the sacral nerves. This was done by Dr. Gostling, with the result that the patient completely recovered.

CHAPTER XXXII.

DISEASES OF THE MAMMARY GLAND.

ON THE DIAGNOSIS OF INFLAMMATORY AFFECTIONS AND TUMOURS OF THE BREAST, WITH SOME REMARKS ON THEIR TREATMENT.

THESE chapters are added to this manual rather with the view of impressing on the student the necessity for greater attention to affections of the breast than he generally devotes to them when attending hospital, than with the hope of doing adequate justice to the conditions it professes to treat of. In practice it will be found that a sound knowledge of the affections to which the mammary gland is subject, both in unmarried and in married women, as the consequence of pregnancy and lactation, is of the greatest importance both in securing the confidence of his patients and for his own reputation's sake. Obviously, a description of the female mammary gland and its affections should be included in any complete work on 'Diseases of Women;' and it is rather a matter for surprise that they are generally not so embraced in text-books on this subject.

I must rest content with a brief notice of the principal causes of inflammation of the more superficial and deeper structures of the gland, and the important facts bearing on the differentiation of cancer and its diagnosis, while I enter rather fully into the mode of examining a breast and the diagnosis of tumours.

*Classification of Affections of the Mammary Gland.**Inflammation.*

General hyperæmia.

(a) Acute—Subcutaneous (abscess).

Intraglandular „

Submammary „

(b) Chronic—Mammary „

(c) Traumatic Enlargements and Tumours—Result of contusions.

General hypertrophy.

Elephantiasis.

Adenoma	{	Painful mammary tumour.
		Chronic mammary tumour.
		Cystic.

Sarcoma	{	Adeno-sarcoma.
		Cysto-sarcoma.

Cystic	{	Sanguineous.
		Serous.
		Sebaceous.
		Mucoid.
		Hydatids.

Lipoma.

Galactocele.

Malignant growths.

Scirrhus.

Encephaloid.

Melanosis.

Colloid.

Functional Disorders.

Galactorrhœa (excess of milk).

Agalactia (want of milk).

Disorders of Innervation.

Hyperæsthesia.

Neuralgia.

Suppression of milk.

Syphilis.

Primary sores.

Syphilitic cutaneous affections.

„ ulcerations.

Affections of the Nipple.

Hyperæsthesia.

Inflammation and abscess.

Areolar abscess.

Chaps and fissures.

Flattening.

Congenital anomalies.

Syphilitic sores.

Eczema.

Cutaneous affections.

Erythema.

Erysipelas.

Eczema.

The various other skin eruptions.

Method of Examining the Breast.

In taking the history of any case of mammary affection, there are certain evidences into which it is absolutely necessary for the surgeon most carefully to make inquiry into :

(1) *The Age of the Patient.*—Neuralgic affections, adenoma, painful mammary tumours, are more frequently met with in young females, at least before thirty ; whereas sarcomatous, cystic, carcinomatous growths, chronic eczematous states of the nipple, and psoriasis, occur more generally after that age ; malignant diseases particularly being common between the ages of thirty-five and fifty.

(2) *The Relation to Menstruation.*—The increase of development of the breasts, with the establishment of the menstrual function at puberty, gives rise to sympathetic disturbances, neuralgias, and, in some females, irregular or undue

development, which may induce inflammation from slight exciting causes, such as pressure, injuries, cold. At this period, also, adenomatous formations may commence. The nipples are sensitive, and are apt to become congested and irritable. In some women the relation of the uterine function to the mammary gland is marked by increased sensitiveness, with accompanying fulness and turgescence of the nipple during the catamenia. And in cases of uterine congestion associated with dysmenorrhœa or amenorrhœa, neuralgic pains and tenderness of the breasts are not unfrequent.

(3) *Special Ætiological Causes.*—Certain antecedents of the patient, both of her individual history and circumstances and hereditary influences, have to be taken into careful account when examining a breast case.

(a) *Injuries.*—Squeezes and blows on the breast, especially in young females, may cause inflammation or abscess, or perhaps result in a small tumour or nodosity. During the lactiferous period, and more especially during and after pregnancy, is this likely to occur. When we consider how exposed the mammæ are to bruises of one kind or another we are afforded a ready explanation of the common belief in this class of injury as a cause of mammary growths.

Velpeau, and before him Sir Astley Cooper, drew attention to spontaneous ecchymosis as a consequence of suppressed menstruation and chlorotic or purpuric states. It is remarkable, in some women, how slight a degree of pressure will be sufficient to cause an extensive discolouration of the breast. Velpeau thought that these spontaneous extravasations might be the cause of further gland-changes, and perhaps tumours. Rupture of bloodvessels and of the lactiferous tubes, resulting in escape of blood and milk, may be the starting-point of abscess, if not of adenoid growths.

(b) *Syphilis.*—Rather is it important to keep in view the

relation of syphilis to cutaneous affections of the breast, than its association with any important changes in the deeper gland-tissues. Primary syphilitic sores are met with on the breast, and secondary eruptions of various kinds.

The principal of these are : Tubercles, eczema, psoriasis, ecthymatous ulcers, rupial sores.

(c) *Pregnancy and Lactation*.—The frequent occurrence of inflammatory changes in the breast during the active discharge of its functions, both in the formation and secretion of milk, would deserve more than a passing notice ; so also would the relation which pregnancy and lactation have to mammary inflammation and interstitial changes in the gland-tissue, as also to morbid growths. During pregnancy, inflammatory changes in the breast are not common. It is when the mother is nursing, or commencing to nurse, that mammary troubles are prone to arise. These may occur at any period of lactation, or after the weaning of the child. Mammitis may come on shortly after the first appearance of the milk and in the commencement of nursing. On the other hand, abscess may occur some weeks or months after the child is weaned. Localized congestions may happen, and stasis of milk in the gland-ducts, which lead, if not to inflammation, to those knotty milk-tumours that may either be absorbed or become encysted, or terminate in adenoid growths. The nipples take a prominent part in the causation of mammary inflammations and the abnormal changes which are consequent upon pregnancy and lactation. Imperfect development, flattening, inflammation, hyperæsthesia, chaps and fissures, eczema or impetigo, are all causes of mammary inflammation during lactation. This is the result, not so much of the condition of the nipple and the obstruction to the escape of the milk, as the interference which the sore nipples offer to the child's application to the breast. Perhaps in every-day practice there is no cause so

frequent of inflammation of the breast and abscess as fissures, so-called 'cracks' of the nipples, and excoriations. These are frequently preceded by a flattened state of the nipple. Parturition and the consequent lactation are the causes of the various kinds of lacteal tumours, deep-seated abscesses, whether superficial, submammary, chronic mammary (cold), diffused, encysted, or abscess of the nipple, which are found attacking the breast after pregnancy. Nor is it any matter for astonishment that during a time and condition of life when the gland is in a state of great activity, highly vascular, and prone to congestion, it should, from its exposed position, owe so many of its morbid conditions to the infliction of blows or other injuries which are inflicted during the child-bearing period. Nor must we forget the condition of the blood both during and immediately after pregnancy, which not alone predisposes to, but likewise favours greatly, the occurrence of inflammation.

(d) *Heredity*.—Though it may be considered doubtful as a cause of malignancy, still I have no hesitation in saying, that, as an element in determining our diagnosis or arousing our suspicions in a doubtful case, proofs of hereditary influences on the side of either parent should always be taken into consideration. The evidence is of too convincing a character that they exert a predisposing influence in the conversion of benign into malignant growths, and that where such a diathesis has existed in father or mother, it is likely to reappear in the offspring; and, perhaps, in no organs is this predisposition more frequently manifested than in the uterus and breast.

(4) *Symptomatology*.—*Pain*.—The nature, severity, and time of occurrence of the pain complained of will often assist the surgeon in his diagnosis of a mammary affection. As he must not place undue importance on the existence of pain, even

of a severe character, so he must learn never to despise this early indication of some form of interruption to the harmony of the processes of nutrition and secretion in the gland, or disturbance, whether central, peripheral, or reflex, in its nervous supply. There is the pain of which the sufferer complains, and which is out of all proportion to any local manifestation, and yet is frequently present when, on careful examination, the breast is found to present no evidence of either inflammation or tumour. Perhaps it is aggravated by any pressure on the gland, and also in the course of the intercostal nerves. The pain may be described by the sufferer as 'agonizing,' and is either always present, or comes in fitful starts. At times the patient will point to some particular spot in the breast from which the pain radiates, in the course of the mammary, cervical, and intercostal nerves. It may be that total relief from the pain is felt for some weeks or months, and then it recurs with greater intensity than before. These pains are essentially neuralgic in character. Both Sir A. Cooper and Velpeau have graphically described them; and both these authorities also noticed their association with small adenoid tumours—'nodosities,' as Velpeau styled them—and also 'irritable tumour of the breast.'

Occasionally the tumour may be of a large size, but even here the freedom from pain when the tumour is examined, the fitful and excessive character of the pain, and the characteristic nervous, excitable, perhaps hysterical, temperament of the sufferer, together with the absence of other proofs of malignant disease, will assist us in distinguishing the pain from that of cancer. Every now and then we meet with patients who complain of this neuralgic pain in a breast, and who are naturally alarmed and inclined to exaggerate the nature of the pain, through the fanciful idea

that it must be associated with 'something bad' in the breast, and who will 'imagine' a tumour (Velpeau) even if there be no tumour present. These women frequently have had some uterine complications, or have had mental worry, perhaps are anæmic or chlorotic, with functional cardiac, renal, or gastric disturbances.

There is the heavy, throbbing pain of submammary inflammation, which every movement of the shoulder aggravates; the deep-seated pain of mammary inflammation, increasing, when suppuration is commencing, to that sharp and severe 'lancinating' pain which marks the formation of abscess. On the other hand, in so-called 'cold abscess,' in which a large quantity of pus is occasionally formed, in different situations, without much disturbance of the general health, both in the mammary gland and in the submammary cellular tissue, pain may be almost absent, or so trivial that the woman is surprised at the enlargement of the breast, which is the principal sign she notices.*

In the growth of adenoid tumours and chronic mammary tumours, pain may be absent or very trivial: so also may this be the case in lipomatous growths. Whereas the general rule in malignant growths is, that pain of some degree, and of varying character, is present at some period of the disease, though it is well to remember that the presence of pain is not the invariable rule in cancer, and that extensive growth is occasionally met with where no pain has been complained of. In the earlier stages of malignant growth, the pain complained of is frequently of a neuralgic character, and follows the course of the superficial mammary

* After the removal of the breast this nervous apprehension on the part of the woman that a tumour is growing in the healthy gland is not uncommon, to allay which fear is often extremely difficult, as the patient will persist that there is a tumour—a belief that the occurrence of some sympathetic or reflex pains, which are not unusual, tends to encourage.

nerves ; later on it is shifting and darting—it is more fixed in the breast, and partakes more of a ‘stabbing’ or ‘burning’ nature, and is frequently increased at night. A peculiar pain associated with malignant disease of the breast is that described by the woman as if ‘cords or strings were drawing the breast together.’ Again would I repeat the dictum of an old surgical teacher of the author’s, which applies as much to the breast as to any other organ, perhaps more so, ‘Never neglect pain ; always seek for its source, and endeavour to discover its cause : no pain which a patient complains of is too trivial to be altogether ignored.’

The general symptoms of inflammation in a breast may be summed up thus. There is tenderness, increase of hardness and fulness at some part of the gland ; this is followed by an arrest in the flow of the milk, which produces a congestion of the portion of the gland in which this arrest takes place. Judicious management and great care may anticipate the danger and restore the affected part to its normal condition ; but if further stasis takes place, and inflammation sets in, there is greater increase in the hardness, attended with redness of the integument ; perhaps the patient has a slight attack of shivering ; the pain becomes greater, the breast is swollen and tense, redness extends, the skin becomes œdematous ; the degree of the constitutional disturbance will depend on the amount of the gland involved in the inflammatory process. Sometimes it is very great, and is associated with general fever. The œdema is followed by softening ; fluctuation is soon detected, and the pus either finds its way to the surface, or is evacuated by the knife of the surgeon. Much will depend on the position of the abscess, whether the pus points superficially or extends deeply. The deeper the abscess, the greater the difficulty of finding an exit, and the condition of things already described is the result. In the superficial abscess the course

of the inflammation is short; the pus points comparatively rapidly, pain is not so intense, and the patient, with any attention, quickly gets well.

In both the deeper kinds of abscess it is far different; the pain and constitutional disturbance are much more severe; sinuses and fistulæ are more likely to form; pus is more apt to burrow; the opportunity to open the abscess and evacuate the pus must be waited for, and the waiting is often tedious and disheartening to the patient.

(5) *The Physical Signs—Examination of a Breast.* (a) *Inspection.*—In examining a breast for a suspected tumour, the patient should be seated, and the entire chest should be bare. We should then carefully contrast the relative appearances as regards size, form, colour of integument, and the nipples of each breast. Examining the integument, we note any change of colour, puckering, or wrinkling, and the surface over which this alteration in appearance extends. As regards the nipple, we notice its projection on the one hand, on the other, its retraction or flattening, the presence of any fissures, cracks, or discharge (sanious, serous, or of milk).

(b) *Palpation.*—We now lightly place the fingers of each hand under either mamma, and, gently raising both, judge of the relative weight, mobility, elasticity, and softness of each. Transferring now our attention to the healthful breast, we palpate it gently with the two hands transversely, judging thus of the nature of the normal gland and its physical character in the individual before us, and also, not an unimportant point, its natural sensitiveness. We now do the same with the affected breast, isolating any hard masses, circumscribing the morbid growth, perhaps searching for the presence of milk, tracing the boundaries of the sensitive area and the course of the painful nerves. We finally place the fingers of the two hands (this may be best done in the recumbent posture) on the surface of each breast, we palpate

it from above down, estimating the degree of hardness, the nature of any nodosities, remembering the possibility of prominent ribs deceiving us in our estimation of the size of a growth. We note the character of the integument, its immobility and adherence; at the same time, we must keep in view the age of the patient, the duration of the growth, and any possible connection between it and the presence or suppression of lactation.

(c) *The Axillary Glands*.—Having thus examined the breasts, we transfer our fingers to either axilla, and carefully contrast the state of the axillary glands, and judge of the extent to which they are involved.

(d) *In Inflammatory States* we seek for hardness, œdema, tension, redness of the skin, general fulness of the breast, and fluctuation. If the abscess be superficial, the sense of fluctuation is easily discerned, following as it does soon after the pain, increased heat, and redness. The fluctuation is generally localized to one part of the breast, more frequently the inferior portion, and to the outer side of the nipple. On the other hand, if the inflammation be seated in the substance of the gland—mammary abscess, intra-glandular abscess (Birkett), parenchymatous abscess (Velpéau)—the œdematous state of the gland, and the diffuse nature of the inflammatory process, or the several points of suppuration, frequently render the certainty of fluctuation difficult to decide. However, the general swelling of the breast, with the consecutive redness and œdema, the characteristic exhaustive pain, and severe constitutional disturbance, are, as a rule, sufficiently diagnostic of this affection. It is rather in submammary inflammation, where the breast is not primarily engaged, but is pushed forwards and made prominent by the underlying effusion, that the detection of fluctuation is difficult; more particularly is this the case if the abscess be of the ‘cold’ or ‘chronic’ kind. ‘If,’ says Velpéau, ‘after

a week or more of inflammatory symptoms, the general reaction, redness, and pain diminish, without the tongue becoming cleaner or the breast subsiding, we may feel sure that an abscess has formed. There can be no doubt of it if there be at the same time a little puffiness, either around or on the surface of the breast, and especially if this oedema preserve the impression of the finger, and a certain degree of redness accompany it; and if for some days there has been indistinct shivering towards nightfall.' It is in this form of abscess that we find the sense of fluctuation best conveyed over the surfaces of the ribs, or at the circumference of the mamma, and that we are able to move the entire breast over the subjacent layer of effusion or fluid.

The Probe in Diagnosis.—It is in submammary abscess that we find more frequently sinuses and fistula. Admirably Velpeau describes the condition which results under the name of *en bouton de chemise*, or 'shirt-stud' abscess. This may occur in two ways: either a subcutaneous abscess has travelled, by a sinuous tract, through the denser tissue of the gland to the submammary areolar tissue in which a secondary abscess is formed, or the pus has taken the opposite course, and has passed from the deep tissue and through the substance of the gland to the superficial; in either case there is a superficial and deep cavity, communicating by a canal passing through the dense glandular tissue. Those who have been unfortunate enough to have had any well-marked cases of this complication to treat, will not readily forget them, more especially if they occur in private practice. I have little doubt that such abscesses commence through hesitation on the part of both patient and surgeon, as also, from want of discretion on the part of the latter in making the necessary incision in the proper position, in the case of an ordinary glandular abscess; at least, they had such an origin in two typical cases I have had under my care.

In the two cases I refer to, the patients had allowed the abscess to burst, and then continued poulticing the breast. When I saw them some months afterwards, one or two apertures existed in the neighbourhood of the nipple. The entire breast was enlarged, pushed forwards, cedematous in parts, discharging a thin pus mixed with milk secretion. The probe passed down through two inches of solid tissue before it was arrested. After free opening of these superficial sinuous passages, and the evacuation of a quantity of thin pus, a large sinus was discovered at the bottom of the wound. On carrying a well-bent probe into this, it passed down to the pectoral muscle, and I was able to completely revolve the probe thus curved, proving that I was in a large cavity, underlying the breast, of at least five inches in circumference. In my first case of this kind I hoped, by enlarging the sinus and evacuating any pus contained in the deep cavity, to effect a cure by daily syringing, and the use of carbolic acid, iodine, and chloride of zinc injections. I opened the dense canal leading to the abscess and evacuated a large quantity of pus. I tried this treatment, keeping the wound pervious with strips of linen wet with carbolised oil, and washing the cavity out daily with the injection named. But I failed ; and ultimately was obliged to make a large incision, laying bare the cavity which I found underlying almost the entire bosom ; though the recovery was tedious, the patient completely recovered, and afterwards, in a subsequent pregnancy, nursed with this breast. I was thus taught a lesson ; and in the second instance, on the discovery of a deep cavity, laid it freely open, and with an equally satisfactory result as in the first case.

Reference to such cases will prove the necessity, when fistulous openings are found in the breast, of careful exploration with the probe. They also prove the uselessness of

temporising, and will help to remind the practitioner that below what may appear to him to be 'the lowest depths' there are 'deeper still,' and that the only way to reach and treat these latter is by free opening, and careful subsequent healing from the bottom of the wound.

GENERAL FEATURES OF THE CASE.

Having thus carefully examined any case, whether of tumour or inflammation, the conditions of the other organs should be inquired into. If the case is one of suspected malignancy, the anæmic or cachectic look should, if present, be noted, and the cervical glands, the thyroid gland, the lungs and liver carefully examined. It is well also, if there are any indications of uterine disease, to examine the uterus. I now assume that a case of tumour of the breast comes to the practitioner for diagnosis ; he must keep before his mind, in forming an opinion, certain data to guide him. I may best convey these by placing them in tabular form :

DIAGNOSIS OF TUMOURS.

GENERAL SIGNS AND SYMPTOMS.

	BENIGN TUMOURS.	MALIGNANT TUMOURS.
<i>Age.</i>	<p>May develop at any period of life, from ten years of age to over fifty; more frequently, however, after twenty and before forty.</p> <p>(The time of detection of a tumour, and the time of its development, must be distinguished: a woman may not discover the presence of a small and painless growth for a considerable time.)</p>	<p>Are detected more commonly from thirty to fifty; most frequent from forty to fifty. Of 238 cases recorded by Billoth, 93 occurred during this decade; of 458 tabulated by Birkett, 193 were in the same interval; and of 273 cases observed by Velpeau, 95 were attacked at the same period of life.</p>
<i>Condition, Married or Single.</i>	<p>Occur both in married and single; but the proportion of cases occurring in single or sterile women is much greater than in the case of malignant disease.</p>	<p>More frequent, apparently, in married and prolific women. Billoth, 236 cases, 213 married, 186 prolific; Birkett, 100 cases, 88 married, 73 prolific.</p> <p>(Billoth rightly points out that the average proportion of unmarried to married women has to be remembered in reading these statistics, as also that of sterile to fertile women.)</p>

	BENIGN TUMOURS.	MALIGNANT TUMOURS.
<i>Rapidity of Growth.</i>	Varies. They generally are of slow growth, or, on attaining a certain size, they remain quiescent for a lengthened period. On the other hand, they may develop rapidly, and in a period of a few months attain to a comparatively large size; this increase of growth depends much on the nature of the tumour, whether cystic, fibrous, adenoid, or lipomatous.	Generally rapid; the rule being that malignant disease kills within three years from its inception. Yet there are striking exceptions to this rule. I have known instances of true scirrhus in which the tuber, or infiltration, has remained quiescent for some years before active symptoms made their appearance (Sir B. Brodie's case, twenty - five years).
<i>Mobility.</i>	Generally quite movable, rarely fixed. This free, or rolling, movement under the fingers is characteristic of isolated adenoid and cystic formations in the midst of the gland-structures. We do not find this mobility so well-marked in the case of lipoma.	Mobile only in the early stages. When the growth is of any duration, or has attained to any size, it is firmly fixed. In displacing the tumour we displace the gland.
<i>Pain.</i>	As a rule, not severe; if present and severe, it is more likely to be of a neuralgic nature, as in the case of 'painful mammary tumour,' radi-	Pain in the advanced stage is the rule, though there are exceptions. It is also severe when present; in some instances it is paroxysmal, and

	BENIGN TUMOURS.	MALIGNANT TUMOURS
	ating in the course of the intercostal nerves, and greatly increased when the tumour is handled.	described as 'darting,' 'lancinating,' 'shooting,' 'burning.' Velpeau's description of the pain is accurate when he says it is 'plunging, deep-seated, constricted.'
<i>Axillary Sub-clavicular Glands.</i>	Normal, not necessarily affected.	Enlarged and indurated.
<i>Constitutional Symptoms.</i>	As a rule none.	Generally present; they are the rule in the advanced stages; especially emaciation and cachexia.
<i>Appearance of Mamma, and Physical Signs.</i>	Skin not changed in colour, nor puckered; nipple, as a rule, not retracted, sometimes prominent. There is a fluid discharge at times of a serous or mucoid nature; the feel will depend on the nature, size, and position of the tumour, whether multiple in character or diffused, superficial or deep, a mere nodosity, or an alteration of all the gland-tissues. These benign growths are	Skin frequently (especially in the advanced stages) changed in colour, contracted, adherent, does not move over the tumour, nor can it be pinched up without dimpling; at times a sanious and offensive discharge from the nipple. The feel is generally of a fixed tumour, hard, lumpy, circumscribed, not rolling under the fingers, frequently imbedded in the gland-tissue, quickly involving

BENIGN TUMOURS.

compact, often heavy (if they involve the entire breast), or nodulated, bossy, elastic; often they are round and movable, and are detected free in the tissue of the breast. Though heavy, they are, on the other hand, soft and lobulated, or impart the sense of fluctuation. This softness, feeling of fluctuation, or comparative hardness, will depend on the lipomatous, cystic, adenomatous nature of the tumour; and the idea is conveyed of isolation or diffusion of the growth according as it is encysted or otherwise. If the tumour be cystic, the aspirating needle or subcutaneous syringe may be used to decide the nature of the fluid — hydatid, serous, sanguineous, mucoid.

With the exception of those growths of a sarcomatous (fibroplastic) or adeno-sarcomatous type, seldom recur.

MALIGNANT TUMOURS.

the skin; the bossy nature of the tumour will depend on its tuberculous or disseminated type. But these appearances must, to a great extent, depend upon the nature of the malignant growth. Encephaloid is soft, elastic, smooth, and more lobulated than scirrhus; more rapidly thinning the skin and setting up inflammation: it grows to a large size, often ending in fungus hæmatodes. Scirrhus, on the other hand, is stony, hard, inelastic, irregular, contracts and draws in the skin without thinning it. Ulceration occurs before there is great increase in size; the breast may even assume an atrophic change and become reduced in size, or appear shrivelled.

The rule is recurrence after removal.

*Whether
Recurrence
after Re-
moval.*

While these general and differential attributes of the two great types of tumours are doubtless well marked in the majority of cases, still there are certain forms of both benign and malignant tumour in which nothing save the assistance we derive from the microscope, and the examination of the tumour microscopically after removal, will decide the question of malignancy. Such a case was the following, recorded by the author.* The tumour was removed from a patient aged forty-four. It had first made its appearance in the year 1877. It gradually increased in size, and never gave any uneasiness to the patient until within the past few months. Of late it commenced to grow rapidly, and now there was occasional pain. The general health was otherwise good. The tumour was hard and lobulated. There was slight retraction of the nipple. One or two axillary glands were enlarged. The entire breast, with the affected axillary glands, was removed. The diagnosis was uncertain before operation as to the nature of the tumour. The nature of the sections, Figs. 277, 278 (for which I am indebted to Mr. George Walton), appeared rather to confirm the view that the tumour was originally of an adeno-sarcomatous nature, and not, as was thought, scirrhus. The cystic type was well seen. The complex character of the tumour rendered its histological differentiation difficult. The cells filling the tubercles and saccules were very small and were not heterologous. All preserved the regular circular outline. The termination of a duct crowded with cells is shown in Fig. 277. In parts the tumour had the appearance of a fasciculated sarcoma or fibroma. The tumour was removed early in August, 1883, antiseptically. The wound healed without the formation of pus. The painless nature of the growth and the very slow progress were against the supposition of carcinoma, but the

* Transactions of the Academy of Medicine of Ireland, 1884.

FIG. 277.

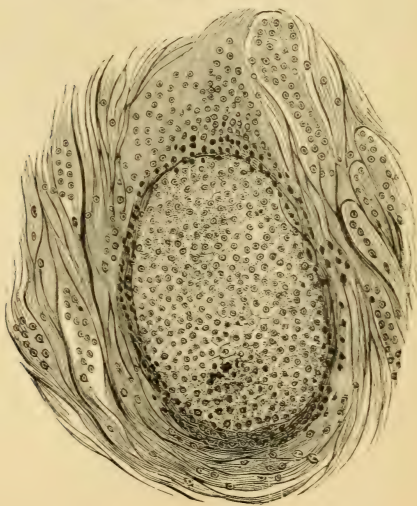
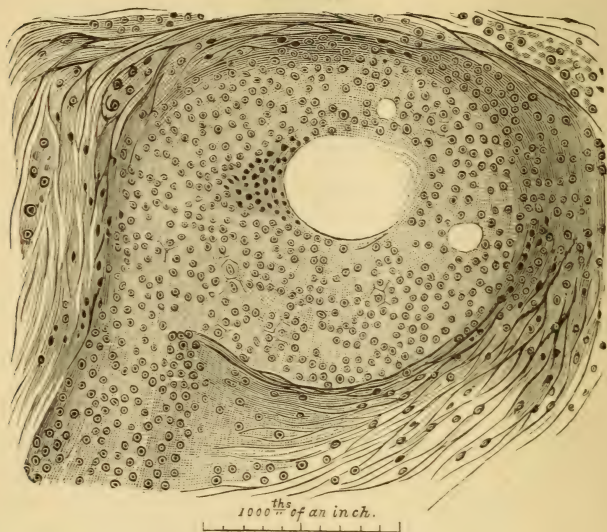


FIG. 278.

macroscopical appearances when the tumour was cut into were in favour of scirrhus.*

A few years since I removed a breast from a lady aged twenty-nine. The breast had annoyed her for two years previous to my seeing her. Several opinions for and against removal had been given. There was little pain, but the breast was evidently infiltrated with new growth, generally hard, especially surrounding the nipple. There were no collateral evidences of malignant disease. In operating, when clearing the gland from the pectoral muscle, I found that here and there the knife apparently opened small disseminated abscesses. On macroscopical examination the tumour cut in parts like cartilage, so dense and hard was the tissue, while imbedded in its meshes, in different places, were small deposits of purulent fluid. Some of these lay deep in the substance of the mass. Several microscopical sections were prepared for me. They mostly presented appearances characteristic of an adeno-sarcomatous growth with dense connective-tissue, the alveoli here and there being filled with proliferating epithelium (Abraham). The lady is quite well. I believe that the origin of this growth was 'chronic mammary abscess,' repressed by continuous treatment, absorbents, strapping, etc.

The difficulty of accurate diagnosis in some cases of mammary tumour is well shown in the two following cases. A young girl, aged twenty-one, in perfect health otherwise, consulted me for a swelling in the breast. This had gradually come on within a few months, the only pain felt being that caused by pressure or manipulation. On examination I found a hard, movable tumour, about the size of a large walnut, without any implication of the skin, and

* This lady subsequently, 1887, died of an affection in no way connected with the breast, which never gave her the least trouble, the cicatrix remaining quite healthy.

no axillary complication. Lately it had more rapidly increased, and was more tender to the touch. I advised removal. I found it encapsuled in a sort of cellular envelope, and close to it a second miniature nodule of the same character; this latter, when cut across, having a lamellated appearance. I had no microscopic section made of this tumour. About a year subsequently she came with another swelling a little nearer the axillary border than the first. It presented just the same characters. I removed it. The

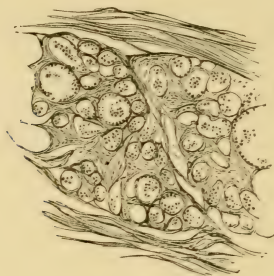


FIG. 279.—Showing the Adenomatous Structure.

characteristic microscopic appearances are shown in Figs. 279-80, as seen in various parts of the tumour. I am indebted to Dr. Abraham for these sections, and his report on them. I have seen the patient recently, and the breast is perfectly healthy. Such recurrence in the case of these adenomata is not common.

A lady aged thirty-six, married, no family, consulted me for a tumour which had appeared, she said, within four months, and had been caused, she thought, by a slight contusion. The mass felt very hard, and deeply placed in the gland; was close beside the nipple; the skin was movable

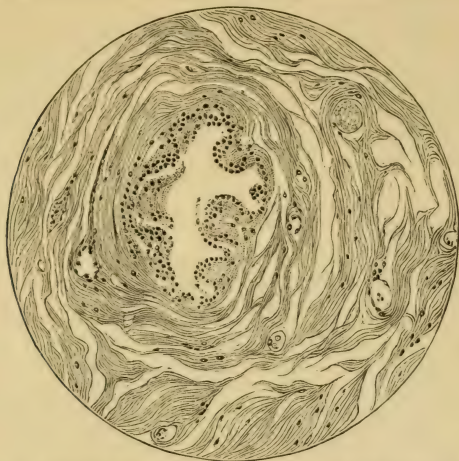


FIG. 280.—Another section of same Tumour (low power) showing its fibrous nature, and a duct with proliferating epithelium.

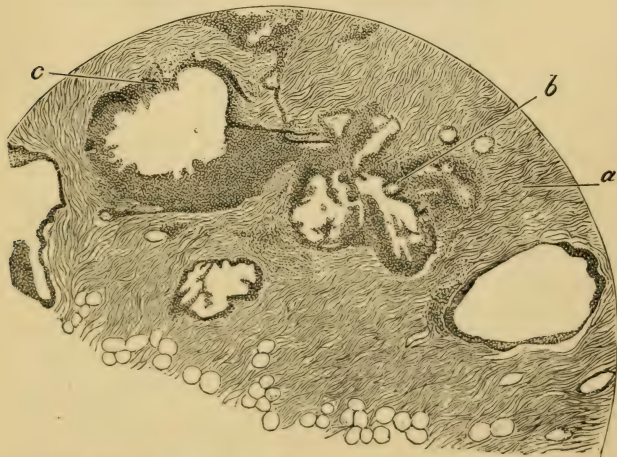


FIG. 281.—Section of Cystic Mammary Tumour (under low power).
a. Fibrous tissue ; *b.* Irregular growth of epithelioid cells of various sizes ; *c.* Cyst formation—the wall lined with proliferating epithelium. In some places the growth was crowded with such irregular epithelioid growths and cystic spaces.

over it; the nipple normal, and the axillary glands not involved. There was no pain, and only on manipulation was any distress complained of. It appeared to me an isolated tumour, and I hoped that it might not be necessary to remove the entire gland. The second day following I

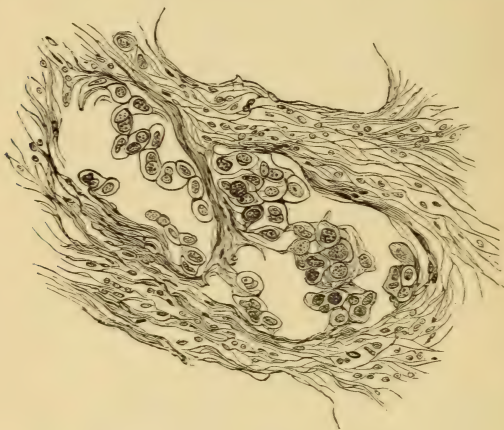


FIG. 282.—A section of Scirrhus of Mamma.

operated. On making the inferior incision the point of the knife touched part of the tumour, and I found I was in a large cystic cavity, from which a quantity of fluid escaped. The surrounding tissue was of such a suspicious character, and was so resisting to the knife, that I immediately resolved on the removal of the entire gland. This operation was performed nine months since. The parts are perfectly healthy. I had several sections made. Portion of one is figured (283). For a report on these, and the case of scirrhus (Fig. 282), I am indebted to Dr. Abraham.

The sections (Figs. 282-83) will show the nature of a tumour which involved the greater part of the gland, and which I had on previous occasions strongly urged the removal of. This breast I removed twelve months since, there being no axillary complications. The parts are now perfectly healthy. There is no doubt of the cancerous nature of the growth.

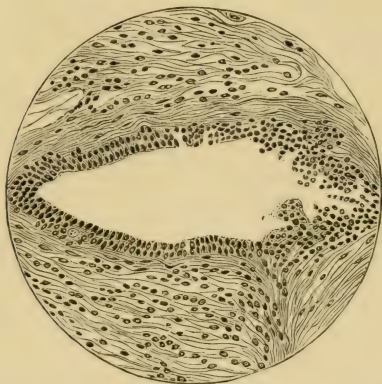


FIG. 283.—From another part of same Tumour as Fig. 282 (probably a duct).

GENERAL TREATMENT OF INFLAMMATORY CONDITIONS.

Inflammation.—Hyperæmic inflammatory states are more generally associated with lactation. A contusion may at any time give rise to inflammatory action, as, for example, during pregnancy; but it is more particularly during the active discharge of the gland function, soon after parturition, that inflammation is apt to occur.

The death of the child may at any time necessitate sudden suppression of the milk. Again, at the time of weaning,

when the child is first removed from the breast, it is liable to inflammation. But, perhaps, in ordinary practice, the more frequent complication which indirectly induces this state is sore nipple. The agony suffered by the mother, from the efforts of the infant to suck, prevents her nursing, and often leads, soon after labour, to the formation of a small areolar, if not to a more serious abscess.

The general principles on which inflammations, both superficial and deep, must be treated, are sufficiently simple. They may be divided into *Preventive*, *Palliative*, *Operative*.

PREVENTIVE MEASURES.

(a) During pregnancy :

Attention to the nipples.

If flattened or sunken, the occasional use of a breast glass.

Proper clothing and avoidance of pressure.

Due support.

The use of eau de Cologne lotion, or tannic acid.

Glycerine and brandy, as an astringent application previous to parturition.

(b) After parturition :

Early application of the child to the breast.

Prevent the child from sleeping at the breast.

Change of the nipples in nursing.

Gentle frictions with oil.

The use of a breast-glass or nipple-shield.

Attention to the nipples.

Support (Seabury and Johnson bandages*).

Attention to over-secretion or congestion of milk.

* These elastic bandages I can strongly recommend.

PALLIATIVE AND PREVENTIVE MEASURES.

(a) Compression (most important) : *

The use of belladonna and conium both in ointment and strapping; the application of leeches and warm sedative fomentations.

(b) The internal use of agelactics, belladonna, conium, agaricin, ergot, iodide of potassium, alkalies, and saline purgatives.

(If there be arrest of the milk secretion, a poultice of fresh castor-oil leaves may be applied. Infusion of jaborandi may be given internally, or pilocarpine, or the decoction or extract of castor-oil leaves, and preparations of malt. Moderate faradisation may be tried.)

The child must not be allowed to suck an excoriated nipple; if there be any aphthæ present in the child's mouth, these must be attended to, and when the child is removed from the breast, great care should be taken to draw off the superfluous milk by means of a suitable breast-pump. If the nipples are fissured, they must be treated by such applications as solutions of nitrate of silver, flexile collodion, styptic colloid; lotions of tannic acid with glycerine, subacetate of lead, lime water, and compound tincture of benzoin, eau de Cologne, hazeline; weak chromic acid, carbolic acid, boracic acid solutions; the lotion of bismuth (3ii.), calamine (3iv.), with oxide of zinc (3ii.), and glycerine (3i.), in rose-water (3viii.), is an admirable one in eczematous conditions and where there is a discharging surface; four per cent. solution may be applied to a painful nipple. Castile and larch soaps, or the compound larch soap, will be found useful to wash the breast with, and, when the nipple and breast have been gently washed with either of these, some light dusting-powder of dried starch, with

* I specially recommend the elastic bandages of Messrs. Seabury and Johnson for the purpose of equable compression of the breast. Also the hydro-naphthol plaster of the same firm is an admirable strapping for the breast.

bismuth, powder of acacia and calamine, or the ointment of oleate of lead and oleate of zinc, made with benzoated lard, may be applied.

As media for the employment of astringent remedies, the infusions of matico or catechu are useful. When there is severe fissuring of the nipple, the child must at once be taken from the breast, and a breast-pump used.

If inflammation threatens, and there is pain, the pigment composed of camphor (ʒii.), mastich (ʒii.), ext. belladonna (ʒii.), chloroform (ʒiv.), flexile collodion (ʒii.), is most soothing. It can be applied under a poultice or stupe of spongiopiline. Leeches often give relief, and may subdue inflammatory symptoms; salines should be administered; the breast should be supported and compressed by properly applied bandages or adhesive plaster. It is the safer rule to fairly support the patient threatened with breast abscess. Quinine, bark, and mineral acids, the effervescing salicylate of quinine, Dover's powder at night, plain but generous diet, are indicated. It should be remembered that much milk, malt preparations, and oatmeal foods, increase the secretion of milk. The administration of stimulating and nutritious diet, or any lowering or tonic medicines, will in great measure depend on the acute or chronic nature of the inflammation.

OPERATIVE MEASURES.

If from the condition of the skin and the degree of pointing we see that an abscess is inevitable, we must resort to warm anodyne fomentations and linseed poultices. The breast should be supported in a sling, fluctuation closely watched for, and if detected, or from the œdematous condition of the skin we suspect the presence of pus, the course for the surgeon to pursue is to make a free incision in the most dependent position. If sinuses follow, we may try such injections as those of iodine, carbolic acid, chloride of zinc, permanganate of potash; if they do not show a tendency to heal readily, it is best to incise them. The use of

poultices for too long a period should not be continued. When they are on we may combine with the poultice some antiseptic, as weak thymol ointment, or sozo-iodol ointment. After using poultices for a few days, and when discharge ceases, resort may be had to a piece of lint dipped in warm carbolised water, and protected by oiled silk, sufficient to cover the breast. If the abscess is deep-seated, and sinuses have formed, it is well, having vacuated the pus, to insert a piece of drainage-tube, which is carried with a drainage dressing-forceps to the bottom of the cavity; through this it can be washed out with any antiseptic or stimulating solution; if a drainage-tube be not to hand, a piece of catheter, as suggested by Velpeau, answers the purpose equally well. During the entire treatment the breast should be supported by either a properly adjusted bandage or strapping. It is in such severe cases that a generous diet is especially indicated. Here also we find that the administration of bark, quinine, Fellows' or Easton's syrups, and other tonics, is necessary.

OPERATIVE TREATMENT OF TUMOURS.

The larger our experience of tumours of the mammary gland becomes, the more do we see the uselessness of trusting to external applications of any kind to dissipate them. Iodide of potassium, iodide of lead, iodine, the oleates of lead and mercury, discutient lotions of chloride of ammonia with camphor, combined with compression, are at times of use in the case of small nodosities, chronic indurations after inflammation, and small cystic growths; but they more frequently fail, and unless growth is otherwise arrested, the use of the knife is sooner or later called for. Lipomatous tumours, small cystic tumours, galactoceles, adenomatous nodules, may remain for years, if not permanently, without growing or giving rise to any pain or even uneasiness. Yet this is not generally the rule. And all such growths cause

great uneasiness in the mind of the woman, and make her apprehensive and unhappy. I feel certain that if the rule to completely remove any circumscribed growths from the mammæ, whether painful or otherwise, which do not yield to treatment in a reasonable time, were generally acted on, we should be on the safer side than in temporizing with any.

Take what pains we may to reassure a patient as to the harmlessness of any form of breast tumour, there is a natural fear of malignant disease which tends to make her dwell on its presence. Also in the instance of cystic and sarcomatous growths, we know sufficient of their liability to assume a malignant nature, to make us, even after years of quiescence, wish they were out of the way of harm. The surgeon is, perhaps, more often in doubt as to the expediency of removal of the mere growth or of the entire mammary gland. His decision must depend on the homologous or heterologous character of the tumour, its size, hardness, the puckering of skin, rapidity of growth, the extent of the gland involved, and the other features which make him suspicious of its malignant or sarcomatous nature. Small, circumscribed, and encysted tumours of a benign type may be carefully removed; but if there are any reasonable grounds for apprehension that the disease is of a malignant nature, or likely to become so, or, again, that the tumour is of any large size, the best course is to amputate the breast. Encysted tumours containing fluid may be incised, and the cyst cavity treated with some stimulating fluid, as solution of iodine, carbolic acid or chloride of zinc. The nature of the fluid may be determined on previously, by drawing off a small quantity with a hypodermic syringe, and examining it so as to ascertain whether it is serous, hydatid, or sanguineous. Hydatid tumours must be removed. *The one safe rule in all cases of malignant growth of the breast is early amputation of the entire breast.* If the axillary glands are

enlarged, these should be carefully removed at the same time, and the entire axilla cleared of all suspicious nodules. The association of eczematous inflammation of the nipple and malignant disease (Paget) must not be forgotten. In a well-marked case of this nature, exhibited by me at the Pathological Society of London in 1881, the woman had suffered for over two years from excoriation of the nipple, and when she was admitted to hospital there was an area of the cir-

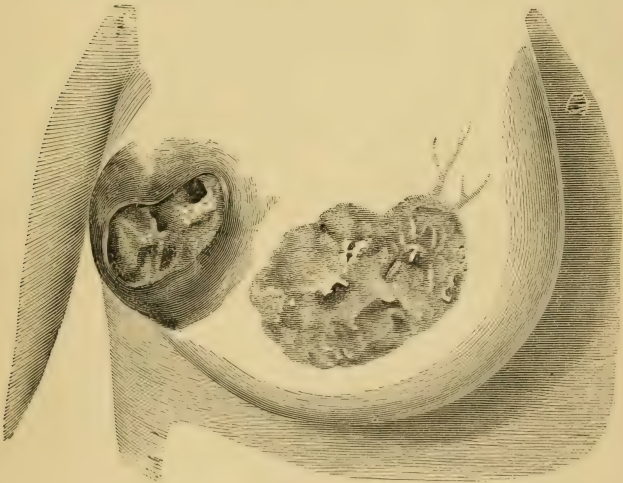


FIG. 284.—Eczema of Nipple, with Scirrhous Mass.

cumference of a crown-piece, including the nipple, of eczematous ulceration (*eczema rubrum*). Close to the axilla was a hard mass of scirrhous, which had ulcerated, leaving a raw surface with the vivid red colouring of malignant ulceration.* I removed in this case the entire bosom, the incision being about ten inches in length, so as to include the entire of the scirrhous infiltration near the axilla. I dissected away all the glands and exposed the entire axillary vessels and nerves

* See page 623.

from the apex to the floor of the axilla. The entire dissection of the axillary structures was as clean as if the part was prepared for demonstration. Yet in one year after the operation the patient returned to hospital, with a huge fungous mass protruding in the side of the wound. (This specimen is in the museum of the Queen's College, Cork.) Only in one instance of extensive scirrhus have I operated in which there was no return of the tumour. The patient died of an acute attack of inflammation of the lungs about two years after the operation, and the breast had given her not the least uneasiness up to the time of her death. Yet it might have developed subsequently. We may decide the question of operation on these grounds :

- (1) The size of the tumour and the degree of infiltration of the mammary tissues ; the extent to which the skin is involved, as well as the condition of the axillary glands.
- (2) The general health of the patient, and the co-existence of malignant disease elsewhere, or of other serious constitutional disorders, as phthisis or uterine disease.

If we determine not to operate, we must palliate and relieve pain to the best of our ability by such means as compression, anodyne applications, as opium, belladonna, conium, and hyoscyamus, in the form either of fomentation, ointment, or strapping, while both morphia and atropine may be administered subcutaneously.

In conclusion, I would say, in regard to any malignant or suspected malignant tumour of the breast, 'Remove early, remove the entire breast, sufficient skin, and all suspicious tissues and lymphatic glands.'

AMPUTATION OF THE BREAST.

Perhaps there is no operation in which the benefit of antiseptic surgery is more perfectly illustrated than in this.

Union by first intention is the rule. To secure this result we should :

Take all the usual antiseptic precautions with instruments, hands, and sponges, before the operation.

Arrest hæmorrhage by torsion, which, if it is properly carried out, and the wound not closed until all bleeding has ceased, I find quite efficacious, and there is little fear of any secondary hæmorrhage.

If ligatures are used, let them be of carbolised gut.

Operate with every antiseptic precaution, and dress with drainage-tube and the usual antiseptic dressings.

Use silver sutures or catgut to unite the margins of the wound ; remove a few of these if there be any undue tension within forty-eight hours after the operation.

Dress subsequently, and daily, under some antiseptic spray, *until the wound has healed.*

When the wound is healing, cover it with a weak thymol or benzoated dressing and a pad of thymol wool.

Dr. L. Wickham has published an interesting paper on the pathology of Paget's disease of the breast (Arch. de Med. Expérim., Jan., 1890). In it he shows that the affection is due to parasitical infiltrations of psorosperms into the epidermis and its prolongations. They are found in various stages of development, and they have a direct influence on the growth of the secondary epithelioma. If found microscopically in the eczematous debris, their presence furnishes a reliable means of diagnosis.

CHAPTER XXXIII.

MASSAGE.

IN view of the importance of treatment by massage in various affections incidental to women, I determine to devote a few observations to it as a fitting conclusion to this work. As the name implies, massage by itself simply means (μάσσω) handling or manipulating. We have in massage, as in many other arts or seemingly new practices, an exemplification of the old adage, that 'there is nothing new under the sun,' for there can be no doubt that the ancient Greeks and Romans availed themselves of this plan of treatment, and, indeed, long before them the Chinese had skilled rubbers.

It is my object, in these few observations, to give my personal experience of the use of massage in the various affections for which I have employed it, and to emphasize some matters of importance to the practitioner who does not wish to become the purest empiric or charlatan, in adopting this potent plan of treatment. That I have some considerable experience of massage will be inferred when I say that, attracted by the reported results of this treatment on the Continent and in America, I have for several years resorted to massage in certain cases of paralyzed and atrophied muscles, and chronically enlarged joints. In later years I have largely availed myself of massage in gynecological practice, in various neurotic affections, in hysteria, in irritable spinal cases, in localized neuralgias, in

painful ovarian states, in amenorrhœa and dysmenorrhœa, in 'uterine lameness,' and for those nomadic sufferers who wander almost aimlessly from physician to physician, 'seeking help and finding none'—women suffering from uterus on the brain. Abdominal massage has proved at my hands most valuable in cases of chronic costiveness, combined with galvanism, especially after dilatation of the sphincters. I have also tried massage successfully in painful functional affections of the globe of the eye; it has been most successfully employed by others in various effusions, and I have myself seen its value proved in the pain of iritis. I have used massage over the mastoid process, with benefit in neuralgias of the external and middle ear, and in otitis intermittens.

In several instances of muscular weakness in throat and laryngeal cases, and in atonic dysphagia, I can testify to its usefulness. In many cases of corpulence in women, at or about the time of the menopause, it has greatly benefited, and in sufferers from chronic rheumatism and rheumatic enlargements it is invaluable. Nine years ago, I myself unfortunately contracted a rheumatic state of both shoulder-joints, which caused me acute suffering, inability to dress myself, or to raise my arms without great pain. To show how crippled I was, I may mention that the college porter had to draw my gown over my shoulders before lecture, though a short time before I had sculled myself from Oxford to London in little over three days.

After exhausting remedies, orthodox and unorthodox, taking some pounds of salicylates, sucking hundreds of lemons, trying sundry embrocations, I completely cured myself by systematic massage of the joints, applied for twenty minutes twice daily. A short Turkish bath, taken in my own house, in a portable bath of Allen, preceded the nightly massage. The constant current from a Léclanché battery

ten and fifteen cells, was applied for five minutes after the massage. I must here protest strongly against the arrant quackery, the rage at present, which is *called* massage, and against the itinerant humbugs who are termed masseuses or masseurs, now being palmed off in shoals on a gullible public as 'skilled rubbers,' many of whom earn much larger incomes than successful young medical men, and who are crassly ignorant of any intelligent application of massage. As I have already said, this is not a special work to enter into a detailed description of the different forms of massage known as 'effleurage,' 'pétrissage,' 'tapotement,' 'friction,' according to the direction and nature of the movements, whether light and more superficial, or deeper and stronger, or effected by percussion and digital pressure. Each variety of massage has its physiological effect on the muscles which are masséd, whether rubbed, kneaded, pinched, or flagellated.

By *effleurage* is meant a peculiar stroking movement made with the palm of the hand, centripetally, in the course of the veins and lymphatics, and in the direction of the muscular fibres.

By *pétrissage* is meant the deeper kneading of the muscles by a movement of combined rolling and pressing, the muscle being seized and squeezed, the movement being made in a centripetal direction.

By *friction* we understand a combined movement of the finger-ends of both hands, one being carried *across* the axis of the limb by repeated strokes, and the other *in* the axis of the limb.

By *tapotement* we imply the percussion of the muscle or limb with the finger-tips, or percussor, or with the back of the half-closed hand. Most masseuses rub with oil or vaseline or lanolin. This is advisable in some cases, though for my own part I prefer 'dry' massage, and

I find patients like it better as a rule. With it, as Murrell points out, you have better muscular contraction, and the electrical currents are more readily developed in the tissues.

I cannot delay to analyze and compare the effects of these different kneadings, frictions, strokings, tappings or beatings. I must group these various methods of action under the general term massage, and even include with these manipulations certain flexions and extensions or movements that are of necessity often combined with them in practising massage. Yet the physiological fact must be remembered that the nature of the stimulus, *i.e.*, its character and mode of application, applied to a muscle, influences not alone the kinetic energy of the muscle, but also the force and distribution of the reflex impulses; we do not get the same results with stroking as we do with either vibration movement or *tapotement*.

With deep kneading we have a different result from that obtained by both of the former acts. I may summarize, albeit very imperfectly, the more important physiological effects of massage on muscle, nerve, vascular distribution and lymphatic supply.

*Muscles.**—The chemical and physical changes consequent upon stimulation of muscles and muscle action, which modern physiological research has established :

- (a) Generation and discharge of carbonic acid.
- (b) Absorption of oxygen.

* I desire to express my obligation mainly to the classical Text-book of Professor Michael Foster, in compiling the summary of the physiological results of the various experimental researches which bear on the effects of massage or gymnastic exercises. Also I have had, amongst other sources, special assistance from the excellent manual of Dr. Joseph Schreiber, of Vienna, and translated by Dr. Walter Mendelson, of New York (Young Pentland, Edinburgh). Another admirable manual in the English language is the 'Practical Treatise,' by Dr. Douglas Graham, of Boston (Wood and Co., New York). (The greater part of this chapter appeared in the transactions of the Gynecological Society, 1889, from a paper read by the author.)

(c) Creation of lactic acid and other chemical changes in the muscle.

(d) Probable slight increase in muscle temperature.

(e) Slight alteration in bulk of the muscle, attended by changes in the blood supply, both in quantity and character.

(f) Generation of reflex impulses. With regard to this effect it has to be remembered, as Foster remarks, that 'a muscle, even putting aside the visible terminations of the nerve, is fundamentally a muscle and a nerve besides.'

(g) Readier response to electrical stimuli after massage, and probable electrical changes ; during massage, excitation in the muscle-nerves excited.

(h) An influence on unstriated muscular peristalsis.

Nerves.—Chemico-physical molecular changes in the nerve-tissue starting both sensory and motor impulses ; these centripetal impulses affect the central ganglia and influence both automatic and reflex actions. The phenomenon of inhibition is manifested. Analgesia is produced by prolonged and continued pressure.

The Vascular Mechanism.—The main effects are to be seen in the peripheral arterial resistance. The peripheral resistance is generally lessened (at times may be temporarily increased) by massage. This is principally due to the following effects : altered nutrition of parts change in the peripheral vaso-motor control ; reflex stimulation of the vaso-motor centres ; altered blood pressure due to the presence of carbonic acid and loss of oxygen (according to Sommerbrot,* intra-bronchial pressure taking an important part in this action on the heart). These effects are mani-

* Sommerbrot : 'Ueber eine bisher nicht gekannte wichtige Einrichtung des menschlichen Organismus.' Tübingen, 1884.

fested in altered blood-pressure and arterial tension, primary diminution, secondary increase.

*Effects.**—The heart's beat may be influenced by (a) the local reflex effects on the skin and muscle, or through the abdominal nerves, during abdominal massage, from splanchnic inhibitory action; (b) by the alteration in the arterial pressure, either local or general, brought about by the massage. Such vascular changes are necessarily attended by a local determination of blood, by alteration in the velocity of the blood current, in the metabolic tissue changes, in the nutrition of the parts masséd, in the comparative rapidity of the removal of excrementitious material. More especially important are such physiological effects if manifested in the case of the portal and renal circulations.

Lymphatics.—In deep massage of the extremities, or kneading, the centripetal flow of lymph in the tendon and fascia lymph vascular spaces is expedited. This will be the case also in the tendinous and fascial structures composing a great part of the abdominal wall; the processes of absorption and resorption are promoted; lymphatic glandular activity is excited. The same occurs in the more superficial lymph vessels from stroking the skin and vibration movements. During deep abdominal massage a powerful influence must be exerted on the lymphatic vascular mechanism and on the nature of the fluid in the lacteal vessels. This will result directly from the continued or intermittent mechanical pressure exerted through the abdominal wall, independently of the altered relations between the superficial and deep lymph currents and the bloodvessels. It must also follow from the effects of massage on the portal circulation. I allude to the more rapid reception by the portal blood of the products of

* See Schreiber's 'Manual of Treatment by Massage,' p. 88, translated by W. Mendelson, M.D., of New York.

digestion, which find their way into it. This temporary increased diversion of food elements necessarily influences the chyle and the tension of the lacteal vessels. Also in general massage, followed by abdominal, through the continued suction effects of increased respiratory movements and general (primary) diminished venous pressure, the lymphatic flow is temporarily encouraged, while through the nervous influence on the abdominal vascular system generally, lymphatic absorption is promoted.

These physiological facts, necessarily modified by the local anatomical relationships, can be well applied to the pelvic structure in which we, as gynecologists, are more especially interested.

We may correlate such physiological effects of massage with the more manifest physiological phenomena and effects noticed in its practice.

In order that I may save time, I arrange these latter in tabular form.

(1) Slight immediate changes in body temperature. These are not constant, and vary, with rare exceptions, to the extent of a degree more or less; of this I have satisfied myself several times. There is occasionally a fall; this is not so common as a slight rise.

(2) Decided increase as a rule in muscle nutrition and power of endurance; increase of muscle weight.

(3) Restoration of reflex excitability in weakened muscles, and the improved association of reflex and automatic action.

(4) Reduction of cutaneous and muscular hyperæsthesia, and relief of pain arising from reflected irritations in distant regions.

(5) Increased effects of galvanism when used after massage necessitating reduction in the strength of the current, and increased care in its employment.

(6) Improved peristaltic action, as shown in the case of the non-striated abdominal muscles of the intestines and the oesophageal muscles.

(7) Results of improved nutritive nerve changes, as we find in the case of muscle. These are shown in restored nerve function, in healthier brain action, in the production of sleep, in alleviation of perverted and distorted mental symptoms.

(8) The improvement in the tone and character of the pulse under massage treatment; the good influence on a sluggish circulation, as exhibited in the effect on cold extremities; the same result in cases of rhythmic irregularity of heart, due to torpid hepatic circulation, flatus, and abdominal obesity. The occasional attack of syncope, which I have had in two instances, is the effect of either a reflex inhibitory stoppage of the heart's beat, or a syncope arising from rapidly lowered arterial pressure. In one patient, vascular and nervous excitement were so pronounced every time head massage was tried that I had to abandon it. This was shown in suffusion of the face and eyes, sense of weight in the head, great mental excitement, hysterical crying; these symptoms were followed by corresponding mental depression.

(9) Absorption of fat, loss of weight due to removal of excrementitious material and useless fat, improved digestive powers; such therapeutic use of massage must be continued with the enforcement of dietetic rules, and avoidance of fat-forming food.

On February 11, I ordered general massage for a lady weighing fifteen stone, one and a half pounds, who suffered from cardiac rhythmic irregularity. In a fortnight she had lost six pounds, and up to this day, March 13, nine and a half pounds.

Urine.—Interesting in connection with this case is a

urinary analysis (No. 1) made for me of the patient's urine—of that passed immediately previous to an hour and a quarter's massage, and of that passed immediately after the rubbing.

No. 1.

SAMPLES OF URINE.				
			Before Massage.	After Massage.
Reaction	...	...	Acidulous.	Acidulous.
Total Solids	...	...	p.c. 5.90	6.55
„ Urea	...	...	„ 2.40	3.05
„ Uric acid	...	...	„ .03	.06
„ Acidity	...	...	„ .43	.51
„ Chlorine as chlorides	...	...	„ .52	.37
„ Sulphuric as sulphate	...	...	„ .12	.15
„ Earthy salts	...	...	„ .31	.34
„ Alkaline	...	...	„ 1.00	1.10
Specific gravity of sample			„ 1021	1028

No. 2.

SAMPLES OF URINE.				
			Before Massage.	After Massage.
Reaction	...	...	Acidulous.	Acidulous.
Total Solids	...	...	p.c. 6.10	6.30
„ Urea	...	...	„ 2.55	3.05
„ Uric acid	...	...	„ .06	.08
„ Acidity	...	...	„ not estim'd.	not estim'd.
„ Chlorine as chlorides	...	...	„ .62	.74
„ Sulphuric as sulphate	...	...	„ .18	.15
„ Earthy salts	...	...	„ not estim'd.	not estim'd.
„ Alkaline	...	...	„ „	„
Specific gravity of sample			1026	1027

The analysis was made by Mr. Brownen, F.C.S.

Side by side with this analysis is another (No. 2), made a day or so before, of the urine of a similar case of fat-

reduction. In this latter case Mr. Brownen did not estimate the alkaline or earthy salts, as fermentation changes might have influenced these and the acidity, as the urine was kept for forty-eight hours previous to analysis.

(10) Resorption of lymph effusions and various exudations ; reduction of glandular hyperplasias.

While thus enumerating the physiological effects of massage, as experienced under favourable conditions of temperament and physique, and aided frequently by other therapeutical means—such as galvanism or faradism, baths, medicinal agents, special dietary—it must be stated that the process is frequently attended by various exaggerated or unexpected results in some or all of the directions enumerated which completely contra-indicate its employment. Certainly it is not a course to be prescribed or recommended in a careless or cursory manner.

Once for all, let me say that the massage I am speaking of is *not* ‘vicarious exercise.’ It is not because exercise and massage have some points in common that they are ignorantly to be spoken of as substitutes the one for the other. It is somewhat of the crow and blackbird relationship. Massage in some of its methods is a form of exercise, but exercise is not massage. Manual massage differs widely from exercise, gymnastic or other, in the nature of the excitation, the power of its limitation to defined areas, the direct action on the bloodvessels, lymphatics and nerves ; the comparatively slight evolution of body heat ; the passive attitude of the subject ; the absence of the more complex actions of a reflex and automatic nature, with the associated cerebral inhibitory supervision, which are the necessary attendants on exercise. The more complicated, or the more finely adjusted such exercises, the more widely do they depart in their nature from the manipulation of massage. We might as well compare the necessary manipula-

tions and the physical labour or fatigue of the masseuse with the effects on the person masséd.

Therapeutically, we might expect to find massage of benefit in gynecological practice in the following affections :

(1) Atonic conditions generally, both of muscles and nerves, as, for instance, relaxed abdominal walls ; intestinal flatulent distension ; chronic tympanitic states ; chronic constipation ; those forms of general debility and lassitude complicating menorrhagia, subinvolution, and other chronic uterine affections.

(2) In reflex neuroses arising from or complicating morbid states of the generative organs in women ; so-called cases of irritable spine ; reflex headache ; cases of 'uterine lameness ;' neuro-mimesis of joints, torticollis.

(3) In amenorrhœa and dysmenorrhœa, especially those cases associated with anæmia and chloræmia.

(4) In neuralgias of the pelvic nerves—oöphoria, neurasthenic coccygodynia.

(5) In unhealthy fat accumulation.

(6) In masturbators.

(7) In that numerous class of female patients in whom there is no organic disease, and that we group under the terms hysteria, neurasthenia, hypochondria.

(8) Glandular hyperplasia.

(9) Mammary infiltrations, in chronic mammary hardening, in threatened milk coagulation, in mammary neuralgia.

Here I may casually refer in passing to the splendid results I have seen in chronic constipation from abdominal massage. I allude particularly to cases of fæcal accumulation. I believe the proper treatment for the more obstinate of such cases to be, dilatation of the sphincters, clearance of the rectum, followed by a course of galvanism and deep massage of the abdomen. A course of belladonna and nuxvomica should accompany the massage.

I have here purposely included only those affections in which I have had ample personal proofs of the benefit of massage. I do not in any observations I make refer to combined internal and external massage, of which there are as many kinds as there are methods of gynecological examination.* I do not think that such modes of treatment are likely to find general favour in this country. How far a licensed abuse of this practice might be carried we need not discuss. How far the possible advantages might be overbalanced by the certain evils it is not difficult to surmise.

I know nothing, personally, of the value of this form of massage in metritis, ovarian tumour, parametritis, perimetritis, cystitis and uterine tumours, and not having tried its efficacy I do not wish to express any opinion on the results of this treatment in the hands of those who have.

It would seem superfluous to speak of the dangers attending the use of external massage in parametritis, and the risks of an uncertainty of diagnosis in these affections, or to the situation and character of effusions, but in works on massage its employment is advised by various authorities in these conditions. One thing appears certain, that the responsibility of administering it in acute pelvic cellular or peritoneal inflammations should rest with no one save a qualified medical manipulator. Even in cases of chronic lymph or serous exudations in the pelvis, I maintain no nurse should be entrusted with the administration of massage, and no one should advise it save a physician, and one well versed in such diseases.

I have known patients who were 'rubbed' while suffering from fibroid tumour and ovarian cyst. The kinetic energy here might have been better expended on the lady's boots. Not long since I had a patient with contracted vulvar orifice, lupoid degeneration of the vaginal wall, and

* See page 640.

uterine hæmorrhage. She consulted me for the hæmorrhage. This was stopped after a little time, and I left. The next I heard of her was that she was being rubbed. A lady friend recommended it, and a doctor sent the masseuse. She was being 'cured.' The last I heard of her was that she was dangerously ill, and under the care of the doctor who sent the masseuse. I have reason to believe that at the time he never locally examined the case. This is the abuse of massage—the vulgar empiricism that I complain of.

I have had too many proofs of the efficacy of the Weir-Mitchell* plan in cases of my own to deny its great use in certain cases. I do, however, mean emphatically to give it as my opinion that discrimination and care are required, both in recommending it and carrying it out. But to fatten women up, and especially young girls, somewhat as a Bey of Morocco would do (in subdued light, and on the flesh of ortolans) only substituting the æsthetic surroundings of a West-End bedroom or boudoir for the seraglio, milk diet for the food of the luscious bird, and massage for a species of 'lomi-lomi,' is not always so permanently conducive to health of mind and body as we are led to believe. In one particular case I am cognisant of, such a course was attended by disastrous mental results—the patient narrowly escaped a lunatic asylum.†

The enforced stuffing and isolation entailed in this modern method of making blood and fat are hardly the therapeutic means to blindly bargain about beforehand. I say that while such isolation and mechanical management may answer in a certain proportion of cases, it cannot but

* See p. 153 for details of Dr. Weir-Mitchell's method.

† I recently had a case of aggravated neurasthenic torticollis in a man of twenty-five years of age. It had resisted other remedies. It yielded completely to a combined course of massage, the galvanic current and subcutaneous injections of cocaine into the sterno-mastoid. The bromide and phosphide of zinc were taken internally.

be followed by injurious results in others, while in many the improvement, at best, is but of a transitory character. Let me, however, cite, in proof of the benefit of the Weir-Mitchell system, the outlines of one remarkable case. A young lady, of highly neurotic temperament, consulted me for œsophageal and spasmodic stricture; she suffered from dysmenorrhœa, and there was a slight degree of retroversion. She was greatly reduced. The retroversion was restored. Still the difficulty of swallowing continued, notwithstanding active local treatment, œsophageal galvanism, internally and externally, the passage of the bougie and various remedies in the shape of nerve tonics, bromides, etc. However, ultimately she recovered sufficiently to enjoy food and revert to her ordinary duties. Some months subsequently she returned worse than ever. She was greatly emaciated, and could with difficulty swallow even a teaspoonful of fluid; the swallowing of any liquid was attended by a loud gurgling. An atonic state of the muscular fibres resulted in a pouch-like dilatation of the gullet, in which blood collected, and from which they regurgitated. The skin was dusky and the face pinched. Altogether, her state was most wretched. Still, I could pass, with a little difficulty, a large œsophageal bougie into the stomach. Suffice it to say that with a six weeks' course of Weir-Mitchell's plan, combined with massage of the neck muscles, and external galvanism, this patient was perfectly, and I believe permanently, restored to health. She was isolated from friends for a period of about five weeks.

I will conclude with a summary of one instructive case: About four years since, a young lady, accomplished and well educated, injured herself in playing tennis. She was examined under chloroform and a large ring pessary inserted. This was after a time removed, but not before it had caused vaginitis and some metritis. This was followed

by various neurotic troubles, inability to walk, agonizing ovarian pain, loss of flesh, general nervousness. Another consultation ended in the verdict of 'shortening of round ligaments.' She came a long distance to London to me, in order, as she wrote beforehand, to have this done. I could find no necessity for this curtailment of the round ligaments; there were the remains of the metritis, some slight retroversion, intense vaginal irritation, catamenial irregularity and scantiness, some left Fallopian fulness and ovarian congestion. She was under my care for some time, and underwent a prolonged course of massage and modified Weir-Mitchell regimen; the progress was slow. Gradually she recovered. Her circumstances, unexpectedly, demanded the pursuit of some occupation. Having intelligently watched the excellent masseuse, who operated on her for a considerable time, with my approval she determined to practise massage. She did so, got instruction, studied for herself, and became a most successful masseuse. Needless to say her round ligaments were not shortened.

CONCLUSION.

I maintain that it is the duty of the physician to superintend the administration of the massage, so far as constantly seeing its effects on his patients, and directing the kind of massage to be used, and the length of time it is to be practised. Also he should regulate the diet, hour of rest, quantity of exercise, amount and character of amusement, times of bathing, and see that the intellectual side of his patient's nature is not wholly neglected for her physical. Massage by no means agrees with all for whom we may feel disposed to recommend it. In conclusion, I would advise all medical men, in determining to make use of massage—

1. To study for themselves the various kinds of massage, and the physiological effects of each form.

2. To select, after careful personal inquiry and questioning, their own masseuse, who must be an intelligent, cheerful woman, with exceptional tact and decision of character.
3. To see that she has some elementary knowledge of anatomy and physiology, and the position of the muscles and bones.
4. To themselves regulate and superintend the kind of massage, the times of massage, the intervals of rest, exercise, and the dietary.
5. If pursuing the Weir-Mitchell plan of rest, feeding, and seclusion, to watch its effects on the patient, and not to blindly adopt this method of treatment in cases without careful supervision, trusting to no nurse or interested home superintendent to carry it out.

Also to endeavour to have a modified system of massage (so far as is possible) persevered in for some time after the patient is removed home.

6. To begin in most cases with general massage of the extremities, trunk and back muscles, gradually practising abdominal massage. This rule, of course, does not apply to those cases in which abdominal massage is especially indicated.
7. Not to use massage immediately before or after meals. Some light nourishment may be taken before and after. The patient should generally rest for an hour, and if she sleeps may be undisturbed. When she wakes she may take a seaweed bath and be well rubbed down. Then she should have her drive or light exercise.
8. The best time for massage is in the morning. I prefer the hour of eleven a.m. The duration of the séance will depend on the nature of the case. I find half

an hour's effleurage generally ample. Two or three short séances in the day are better than one prolonged massage.

9. The practitioner will find that much of the success of his treatment will depend on the type of woman he selects for his cases. She requires strength of body as well as of will, while with these there must be combined gentleness and patience. She must be a woman calculated to inspire hope and confidence, and, above all, reticent in speaking of other patients or their ailments.

Massage in Descent and Prolapse of the Uterus.

Dr. Alfred Smith, late assistant-master at the Rotunda Hospital, Dublin, in a paper read at the Academy of Medicine in Ireland, has described the system of massage and pelvic gymnastics practised by Brandt of Stockholm, Schauta, and others. It consists, briefly, of (1) elevation of the uterus by a plan of combined internal and external manipulation, followed by (2) massage of the uterus and its ligaments, principally by *external* movements in the direction of the internal os from the fundus, the uterus being supported against the abdominal wall by the assistant's finger in the vagina. These uterine movements, etc., are followed by (3) pelvic gymnastics, the patient's thighs, as she lies in the lithotomy position, being forcibly abducted, while she resists, at the same time that she raises the sacrum from the couch, and supports herself on the elbows and feet. Lastly, (4) tapotement of the lumbar and sacral vertebræ is practised with the clenched fist. In the six cases in which Dr. Smith tried this treatment the permanent successful results are only recorded in two, but on the whole he speaks favourably of it. Dr. Smith devised a uterine elevator which the patient can herself use to raise the uterus, and thus avoid the necessity for an assistant's fingers in the vagina. (See paper by Dr. Alfred Smith, 'Transactions of the Academy of Medicine in Ireland,' 1889.)

CHAPTER XXXIII.

A FEW OF THE PRINCIPAL FOREIGN AND HOME SPAS AND HEALTH RESORTS.

The author by no means intends this list as a complete one. It contains most of the important European health resorts. It is revised from his work on the 'Health of the Senses,' 2nd Edition.

(The nature of the water is roughly given, and the situation.)

SPAS.

Pelvic Affections of Women.

NAME.	CHARACTER OF WATER.	SITUATION.
Adelheidsquelle	Salts, with iodine and bromine	Bavaria.
Barèges ...	Sulphurous	Hautes-Pyrénées.
Bagnères de Bi- gorre... ..	Ferruginous ; arsenical ...	Hautes-Pyrénées.
Bourboule, La	Highly arsenical	Puy-de-Dôme.
*Brides-les-Bains	Alkaline	Savoy.
Carlsbad ...	"	Bohemia.
Carlsbrunn ...	Ferruginous (effervescing)	Silesia.
Eaux-Chaudes...	Sulphurets with chlorides	Basses-Pyrénées.
Ems	Alkaline	Duchy of Nassau.
Les Escaldas ...	Sulphurous, etc.	Pyrénées-Orientales.
Franzensbad ...	Ferruginous ; alkaline	Bohemia.
Wilbad-Gastein	Electrical	Duchy of Salzburg.
*Kissingen ...	Saline (chlorides)	Bavaria.
*Kreuznach ...	Saline ; strongly iodized ; mud baths	Rhenish Prussia.
*Marienbad ...	Ferruginous and alkaline	Austro-Hungary.
Nenndorf ...	Sulphates and saline ...	North-west Germany.
Plombières ...	Various ; ferruginous ...	Vosges.
Pyrmont ...	Ferruginous ; brine baths, etc.	Waldeck-Pyrmont.
*Royat	Arsenical and iron	Puy-de-Dôme, France.
Salins	Various ; ferruginous, chlorides, and iodides ...	Savoy.
*Schwalbach ...	Ferruginous	Hessen-Nassau.
*Spa	"	Belgium.
Uriage	Saline ; sulphurous ...	Isère, France.
*Woodhall ...	Bromine and iodine ...	Lincolnshire.

Those Spas marked with an asterisk are ones which the author can most strongly recommend in affections of the pelvic organs of women.

SPAS (*continued*).
Special for Impoverished Blood.

NAME.	CHARACTER OF WATER.	SITUATION.
Bagnères de Bi-gorre	Ferruginous and arsenical	Hautes-Pyrénées.
Bath	Ferruginous	Somersetshire.
Biarritz	Sea-bathing	Basses-Pyrénées.
Cannes	Sea-coast	Maritime Alps.
Carlsbrunn	Ferruginous	Silesia.
Châtel-Gyon	Chlorurets of sodium and magnesium, and ferruginous	Puy-de-Dôme.
Franzensbad	Alkaline ; ferruginous	Bohemia.
Levico	Ferruginous and arsenical	Trentino, Austria.
Marienbad	Ferruginous and saline	Austro-Hungary.
Plombières	Various ; ferruginous	Vosges.
Pymont	Ferruginous	Waldeck.
Rippoldsau	Saline ; chalybeate	Black Forest.
Royat	Arsenical and iron	Puy-de-Dôme, France (1,480 feet).
Schwalbach	Ferruginous	Nassau.
Spa	„	Belgium.
Stahlbrunnen of Homburg	„	Central Germany.
St. Malo	Sea-air	Ile-et-Vilaine, France.
St. Raphael	„	Var, France.
Tunbridge Wells	Ferruginous	Kent.
Vals	„	Ardèche, France.

Glandular Organs (Strumous Affections).

Ashby - de - la - Zouch	Saline	Leicestershire.
Eaux-Bonnes	Alkaline sulphates	Basses-Pyrénées.
Eaux-Chaudes	Sulphurets ; chlorides	„
Ischl	Sulphurous	Austria.
Kreuznach	Iodized ; chlorides	Rhenish Prussia.
Leamington	Chlorides	Warwickshire.
Leuk	Sulphates, etc.	Switzerland.
Lichtenthal	Ferruginous	Baden.
Marienbad	Alkaline	Austro-Hungary.
Reichenhall	Saline	Upper Bavaria.
Sankt Moritz	Alkaline	Switzerland.
Tarasp	„	„
Woodhall Spa	Bromine and iodine	Lincolnshire.

SPAS (*continued*).*Hepatic Affections and Gout.*

NAME.	CHARACTER OF WATER.	SITUATION.
Aix-les-Bains ...	Sulphurous ...	Savoy.
Aix-la-Chapelle	Alkaline and sulphates ...	Rhenish Prussia.
Baden-Baden ...	Alkaline ; chloride of sodium ...	Duchy of Baden, Germany.
Bath ...	Alkaline and sulphates ...	Somersetshire.
Bilin ...	Alkaline (carbonates) ...	Bohemia.
Bourboule, La ...	Arsenical, etc. ...	Puy-de-Dôme, France.
Brides-les-Bains	Alkaline ...	Savoy.
Buxton ...	Various spas ...	Derbyshire.
Carlsbad ...	Alkaline ; soda salts ...	Bohemia.
Cheltenham ...	Various spas ...	Gloucestershire.
Contrexeville ...	Alkaline ...	Vosges.
Ems ...	„ ...	Germany.
Harrogate ...	Sulphur ; iron ; saline ...	Yorkshire.
Homburg ...	Alkaline, with iron and sulphur ...	Central Germany.
Kissingen ...	Saline (chlorides) ...	Bavaria.
Lisdoonvarna ...	Sulphur, etc. ...	Co. Clare, Ireland.
Malvern ...	Brine and saline baths ...	Worcestershire.
Marientbad ...	Saline (with iron) ...	Bohemia.
Nauheim ...	Saline (chloride of sodium) ...	Hessen-Nassau.
Strathpeffer ..	Sulphur and sulphates, etc. ...	Ross-shire.
Vals ...	Alkaline and alkaline earth (bicarbonates) ; various spas ...	Ardeche, France.
Vichy ...	„ „	Central France.
Vittel ...	Various salts (sulphates and bicarbonates of lime and magnesia ; iron, and manganese) ...	Vosges.
Wiesbaden ...	Saline (chlorides) ...	Nassau.

Urinary Organs.

Baden-Baden ...	Chloride of sodium (arsenic and lithium) ...	Duchy of Baden.
Bilin ...	(‘ Cold Vichy ’), saline ...	Bohemia.
Buxton ...	Various ; carbonate of lime ; iron ...	Derbyshire.

SPAS (*continued*).*Urinary Organs.*

NAME.	CHARACTER OF WATER.	SITUATION.
Carlottenbrunnen	Chalybeate	Silesia (whey cure).
Carlsbad ...	Alkaline ; soda salts ...	Bohemia.
Contrexeville ...	Alkaline	Vosges, France.
Ems	"	
Harrogate ...	Various sulphur spas ; also iron and saline	Yorkshire.
Homburg ...	Alkaline, with iron and sulphur	Central Germany.
Kissingen ...	Saline (chlorides)	Bavaria.
Mannheim ...	Saline	Central Germany.
Marienbad ...	Alkaline and ferruginous	Bohemia.
Neuenahr ...	Alkaline	Rhenish Prussia.
Vals	Alkaline and alkaline earth (bicarbonates) ; various spas	Ardeche, France.
Vichy	"	Allier, France.
Vittel	Various salts " (Grande Source)	Vosges, France.
Wildungen ...	Alkaline	Waldeck.

Nervous System.

Corfu	Sea-coast	Ionian Islands.
Ems	Alkaline ; muriatic	Duchy of Nassau.
Wilbad-Gastein	Electrical	Duchy of Salzburg.
Levico	Ferruginous ; arsenical ...	Trentino, Austria.
Marienbad ...	Ferruginous ; alkaline ...	Austro-Hungary.
Plombières ...	Various ; gas baths	Vosges.
Rippoldsau ...	Saline effervescent ; chaly- beate	Black Forest.
Salins	Various	Savoy.
Teplitz-Schönau	Alkaline and saline	Austria.

Affections of the Skin.

Acquæ-Albulæ ...	Sulphurous ; saline	Near Tivoli, Italy.
Aix-la-Chapelle	Alkaline and alkaline earths ; also sulphates ...	Rhenish Prussia.
Aix-les-Bains ...	" "	Savoy.
Barèges	Sulphurous	Hautes-Pyrénées, France.

SPAS (*continued*).
Affections of the Skin.

NAME.	CHARACTER OF WATER.	SITUATION.
Bonn	Cold sulphurous	Switzerland.
Bourboule, La	Arsenical, etc.	Puy-de-Dôme, France.
Cauterets	Sulphurous	Hautes-Pyrénées.
Harrogate	Various sulphur spas ; also iron and saline	Yorkshire.
Kissingen	Saline (chlorides)	Bavaria.
Kreuznach	Saline ; strongly iodized ; mud baths	Rhenish Prussia.
Lisdoonvarna	Sulphur, etc.	Ireland.
Marienbad	Saline (with iron)... ..	Bohemia.
Royat	Arsenical and ferruginous	Puy-de-Dôme, France.
Schinznach	Sulphurous	Aargau, Switzerland.
St. Christan	Iron and copper	Basses-Pyrénées.
Strathpeffer	Sulphur	Ross-shire.
Tarasp	Sulphates and alkaline	Lower Engadine.
Uriage	Saline ; sulphurous	Isère, France.
Vals	Alkaline and alkaline earths (bicarbonates) ; various spas	France.
Vichy	„ „	Central France.

Joints, Rheumatism, etc.

Aix-la-Chapelle	Alkaline and alkaline earths	Rhenish Prussia.
Aix-les-Bains	Alkaline and alkaline earths, and sulphates	Savoy.
Baden	Saline and sulphurous	Near Vienna.
Baden-Baden	Special lithia waters— saline, chlorides	Duchy of Baden.
Barèges	Sulphurous	Hautes-Pyrénées.
Bath	Saline ; sulphates ; iron carbonate	Somersetshire.
Bourboule	Arsenical	(2,850 feet).
Buxton ... ..	... ..	Derbyshire.
Cauterets	Sulphurous	Hautes-Pyrénées.
Cheltenham ... ..	... ..	Gloucestershire.
Droitwich	Brine baths	Worcestershire.
Les Escaldas	Sulphurous	Pyrénées-Orientales.
Eaux-Chaudes	Sulphur springs	Basses-Pyrénées.
Kreuznach	Saline ; iodized	Rhenish Prussia.
Lisdoonvarna	Sulphurous and sea-water	Ireland.

SPAS (continued).
Joints, Rheumatism, etc.

NAME.	CHARACTER OF WATER.	SITUATION.
Luchon ...	Sulphurous and ferruginous	Haute-Garonne.
Malvern...	Brine and saline baths	Worcestershire.
Mont Doré ...	Alkaline ...	Puy-de-Dôme.
Neudorf...	Sulphurous ...	Bohemia.
Plombières ...	Various and ferruginous...	Vosges.
Strathpeffer ...	Sulphurous, etc. ...	Ross-shire.
Tarasp ...	Alkaline ; ferruginous ...	Engadine (4,500 feet).
Vernet ...	Sulphurous ; saline ...	Pyrénées-Orientales.
Wiesbaden ...	Alkaline and saline ...	Hessen-Nassau.
Woodhall Spa ..	Iodine and bromine ...	Lincolnshire.

Throat and Laryngeal Affections.

Aix-les-Bains ...	Sulphurous ...	Savoy.
Algiers ...	Sea-air ...	Africa.
Biarritz ...	Sea-coast ...	Basses-Pyrénées.
Cannes ...	„ ...	Maritime Alps.
Cauterets ...	Sulphurous ...	Hautes-Pyrénées.
Corfu ...	Sea-coast ...	Ionian Islands.
Eaux-Bonnes ...	Sulphurous and alkaline ...	Basses-Pyrénées.
Gleichenberg ...	Ferruginous, etc. ...	Styria.
San Remo ...	Sea-air ...	Italian Riviera.
Schinznach ...	Sulphurous ...	Switzerland.
Tangiers ...	... ..	Morocco, Africa.

Lungs.

NAME.	SEASON.	SITUATION.
Acireale...	Winter ...	Sicily.
Ajaccio ...	„ ...	Corsica.
Algiers ...	„ ...	North coast of Africa.
Balearic Islands	Spring and summer.	
Biarritz ...	Winter ...	Basses-Pyrénées.
Bournemouth ...	More especially winter.	Hampshire.
Cairo ...	Winter ...	Egypt.
Canaries (Las Palmas, Grand Canary, Tenerife, Sta. Cruz)	„ ..	Near African coast, one day's sail from Madeira.

SPAS (*continued*).*Lungs.*

NAME.	SEASON.	SITUATION.
Cannes ...	Winter	Riviera.
Cauterets ...	Summer and autumn ...	Hautes - Pyrénées (3,050 feet).
Colorado*	Summer and winter ...	Central N. America.
Corfu ...	Winter	Ionian Islands.
Davos Platz ...	Winter and summer ...	Valley of Grisons (5,200 feet).
Eastbourne ...	More especially winter ...	Sussex.
Eastern Spain ...	Winter.	
Eaux-Bonnes ...	Summer	Basses-Pyrénées.
Egypt ...	Winter.	
Glengariff ..	More especially winter ...	Ireland.
Guernsey ...	„ „	
Hastings ...	„ „	Sussex.
Hyères ...	Winter	Riviera.
Jersey ...	More especially winter.	
Madeira ...	Winter.	
Maloja ...	Winter and summer ...	Upper Engadine (5,688 feet).
Malvern ...	Winter and spring ...	Worcestershire.
Mentone ...	Winter	Riviera.
Monaco and Monte Carlo ..	„	Principality of Monaco.
Monte Doré ...	„	Auvergne (3,300 feet).
Murren ...	Summer	Bernese Oberland, Switzerland.
Nice ...	Winter	Riviera.
Orange Free State	„	South Africa.
Pau ...	„	Basses-Pyrénées (650 [feet]).
Penzance ...	More especially winter.	
Pontresina ...	Summer and winter ...	Upper Engadine (5,915 feet).
Queenstown ...	More especially winter ...	Ireland.
Sankt Moritz ...	Winter and summer ...	Engadine (6,100 feet).
Southern France	Winter.	
St. Leonard's ...	More especially winter.	
San Remo ...	Winter	Riviera.
Swiss mountain stations ...	Summer and winter.	
Tangiers ...	Winter	Morocco.
Torquay ...	More especially winter ...	Devonshire.
Ventnor ...	„ „	Isle of Wight. [feet].
Vernet ...	Winter	East Pyrénées (2,000

* This famous health resort of the Rocky Mountain Range, for consumptives, is one of the finest in the world.

IMPORTANT SEA-BATHING RESORTS.

England.

Blackpool, Lancashire.	Lowestoft, Suffolk.
Bexhill-on-Sea, Sussex.	Margate, Kent.
Birchington, Kent.	Morecambe Bay, Ulverstone.
Bognor, Sussex.	New Brighton, Cheshire.
Broadstairs, Kent.	Penzance, Cornwall.
Burnham, Somersetshire.	Ramsgate, Kent.
Clacton, Essex.	Ryde, Isle of Wight.
Clevedon, Somerset.	Sandown, Isle of Wight.
Cromer, Norfolk.	Scarborough, Yorkshire.
Cowes, Isle of Wight.	Shanklin, Isle of Wight.
Dawlish, Devon.	Skegness, Lincolnshire.
Dover, Kent.	Southend, Essex.
Eastbourne, Sussex.	Southport, Lancashire.
Exmouth, Devonshire.	Southsea, Hants.
Felixstowe, Suffolk.	Teignmouth, Devon.
Folkestone, Kent.	Westgate, Kent.
Hayling Island, Hants.	Weston-super-Mare.
Herne Bay, Kent.	Whitby, Yorkshire.
Ilfracombe, North Devon	

North Wales.

Barmouth.	Llandudno.
Beaumaris.	Penmaenmawr.
Colwyn Bay.	Rhyl.

South Wales.

Aberystwith.	Tenby.
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*Isle of Man.**Scotland.*

Ardrossan.	Oban.
Broughty Ferry.	Rothesay.
Nairn.	

Ireland.

Ardmore.	Kilkee.
Bray.	Kilrush.
Crosshaven.	Portrush.
Dalkey.	Tramore.
Glandore.	Youghal.

A FEW OTHER BRITISH HEALTH RESORTS NOT INCLUDED
IN THE FOREGOING.

*Ben Rhydding, Yorkshire.
Braemar, Aberdeen.
*Crieff, Perthshire.
*Dunblane.
*Ilkley, Yorkshire.
*Matlock, Derbyshire.
*Tunbridge Wells, Kent.

*Moffat, Dumfriesshire.
*Bridge of Allan.
*Pitlochry, Perth.
*Melrose, Roxburghshire.
*Ulverstone, Lancashire.
(Conishead Priory,
Morecambe Bay).

Aperient.—Of the simple aperient waters, the most useful are—Friedrichshall, Pullna, Hunyadi Janos,† Carlsbad, Victoria,† Rubinat.†

Some special Spa Waters to be had in Bottles.—Apollinaris, Bilin, Æsculap, Kreuznach (Mother-lye can be had for baths), Kissingen, Harrogate, Kissingen, Contrexeville, Vichy, Vals, Bourboule, Ems, Nenndorf, Woodhall Spa, Fachingen, Eaux-Bonnes, Renlaigne, Hunyadi Janos, Friedrichshall, Pullna, Victoria, Barèges (Mother-lye can be had for baths).

* All those marked * have important hydropathic establishments.

† Especially for women.

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